Goal Ambivalence

Implications for Self-Regulation, Health, and Well-Being

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ABSTRACT

This thesis is devoted to the examination of goal ambivalence, conceptualized as the experience of evaluative conflict toward a personal goal. Drawing from previous research on approach-avoidance conflicts, personal strivings, and attitudinal ambivalence, goal ambivalence is proposed to result from the perception of conflicting affective, cognitive, or conative reactions toward a currently pursued goal. A self-report measure of goal ambivalence is designed to enable the investigation of the theoretical, empirical, and practical relevance of the construct to the study of goal striving. Three empirical research projects provide evidence for its utility in contributing to the explanation of self-regulation, health, and well-being. In Part I, goal ambivalence is integrated into an established model of personal goal striving. In two cross-sectional and one longitudinal study, it is shown to mediate the effects of university freshmen's study goal self-concordance on subjective well-being. Part II addresses the self-regulatory dynamics of goal striving by testing the hypothesis – derived from classic studies of goal gradients – that goal ambivalence moderates the effects of goal proximity on goal commitment. Four studies focusing on different personal goals demonstrate that increasing self-reported, experimentally induced, or temporal proximity to the goal results in lower goal commitment at high levels of goal ambivalence. In Part III, predictions regarding the effects of goal ambivalence on self-regulation, health, and well-being are applied to the context of pregnancy in two correlational studies spanning cross-sectional, prospective, and daily diary designs. Experiencing ambivalence toward the motherhood goal during pregnancy is found to relate to perinatal maternal well-being, stress, and coping between and within persons. The empirical findings reported in the three chapters suggest that the goal ambivalence measure reliably and validly captures a relevant experience in goal striving that implicates self-regulation, health, and well-being across different life domains. A final chapter discusses the limitations of the present work and raises several questions for future research that could extend it in order to advance understanding of the goal ambivalence construct.

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INTRODUCTION

"But suppose you struggle through to the good and find that it is also dreadful?"

- C. S. Lewis, *Perelandra*

The bride-to-be who feels her feet getting cold every time she pictures herself walking down the aisle. The employee who has just signed the contract for a prestigious position she has worked hard to secure, resisting the urge to retract her consent at the thought of the challenges and responsibilities awaiting her in this job. The emigrant family saying their goodbyes with one eye laughing, one eye crying, before embarking on their journey toward a hoped-for better future. The recreational skydiver who is about to jump the plane and stares out through the open hatch with both horror and elation.

Do these people have anything in common? Could it be that in this very moment they each experience *ambivalence* toward the personal goal they are pursuing? How might this experience of *goal ambivalence* affect their further striving and thriving? And is it an experience that the majority of people have encountered and can relate to, or do the described situations represent extreme examples? It does not seem difficult to come up with such examples, suggesting that the phenomenon of ambivalence in the pursuit of personal goals is at least readily retrievable from memory, and may perhaps also be ubiquitous in everyday life. And yet the scientific psychological literature has relatively little to offer in response to these questions. The dissertation project summarized in this thesis thus set out to explore whether the experience of goal ambivalence can be captured beyond anecdotal reports, and whether it can meaningfully contribute to the understanding of personal goal pursuit.

The following sections will provide an introduction to the use of the ambivalence construct in the field of psychology, discuss its previous and present application to the context of

personal goal pursuit, outline the objectives of the thesis, and give a preview of the subsequent chapters.

The Psychology of Ambivalence

The term ambivalence is traced back to Swiss psychiatrist Eugen Bleuler, who is believed to have first used it in a lecture in 1910 (Jonas, Broemer, & Diehl, 2000a; Sincoff, 1990). It is worth noting that Bleuler (1914) differentiated between three different manifestations of ambivalence, namely, *affective ambivalence* (co-occurrence of opposing emotions toward the same object; loving and hating the same person), *intellectual ambivalence* (co-occurrence of contradictory thoughts or verbal expressions; thinking of something as both good and bad), and *ambitendence* (also termed voluntary ambivalence; co-occurrence of incompatible expressions of the will; wanting and not wanting the same thing), but declared the boundaries between these different manifestations as somewhat blurred. For the main part, Bleuler drew on the concept of ambivalence to describe the phenomenology of schizophrenia. However, he also acknowledged that although integration of opposing feelings, thoughts, or intentions into a one-sided reaction is the norm, the unintegrated expression of such opposites is common in children, and mild expressions of ambivalence are widespread among healthy adults. These contentions would prove a rather accurate forecast of the reception of ambivalence in academic psychology. A century after its inauguration, the construct pervades diverse areas of the field, as well as other disciplines such as political science or sociology (for overviews, see Baek, 2010; Jonas et al., 2000a; Sincoff, 1990). Some exemplary applications of ambivalence in clinical, developmental, and social psychology are highlighted in the following.

Examples of Applications

Clinical psychology. Given the context and content of Bleuler's initial lecture, it perhaps comes as no surprise that the ambivalence construct was first adopted by clinical psychologists. Even outside of the psychology field, ambivalence might be best known for its extensive use by

Freud and successive scholars of psychoanalysis. In this tradition, the term was most commonly applied to describe conflicting feelings of love and hate toward a person or object (i.e., affective ambivalence), featured prominently in psychodynamic theories of development, and continues to play an explanatory role in the etiology and symptomatology of mental disorders (Corradi, 2013; Sincoff, 1990). Beyond the realms of psychoanalysis, intra-psychic conflict or inconsistency in a broader sense has also been identified as a core element of psychopathology (Grawe, 2004; Fries & Grawe, 2006). In the applied therapeutic context, ambivalence often presents as ambivalence toward therapeutic treatment, a prototypic example of ambitendence (willingness to address a problem, but at the same time reluctance to do so). Such therapy ambivalence – observable, for instance, as tardiness or failure to cooperate – constitutes a central impediment to treatment responsiveness and behavior change and can thus become a focus of therapeutic efforts (Engle & Arkowitz, 2006; Grosse Holtforth & Michalak, 2009; W. R. Miller & Rolnick, 2002).

Developmental psychology. While enduring ambivalence may contribute to the emergence and maintenance of mental illness, the acceptance of ambivalence appears to be a sign of healthy development in children. Whereas younger children negate the existence of simultaneous conflicting emotional reactions (i.e., affective ambivalence) in themselves and others, there is evidence for a developmental progression toward both a full understanding of the phenomenon and the own ability to experience and integrate such mixed reactions in adolescence (Donaldson & Westerman, 1986; Sincoff, 1990; Zajdel, Bloom, Fireman, & Larsen, 2013). Ambivalence has also left an imprint on developmental psychology through attachment theory (see Ainsworth, 1979), in which the term was used to describe the behavior of infants in terms of both seeking closeness and avoiding contact with a principal caregiver (perhaps indicative of Bleuler's ambitendence). Such ambivalent patterns of behavior are characteristic of an anxious (sometimes also referred to as anxious-ambivalent) attachment style, one variant of orientations toward attachment figures that are thought to persist into adulthood and in turn affect expectations and evaluations of relationships (Ainsworth, 1989; Mikulincer & Shaver, 2010).

Social psychology. Meanwhile, the analysis of environmental influences on child behavior and development had led Lewin (1935; 1951) to formulate his conceptualization of *approach-avoidance conflict* stemming from field forces of opposing valence – and hence, *ambi-*valence – toward and away from an object. This notion of a *motivational* conflict (again, an instance of ambitendence) was readily adopted, further empirically investigated, and even linked back to psychodynamic theory by behavioral learning theorists (N. E. Miller, 1944; Brown, 1948; Dollard & Miller, 1950). However, despite its early introduction to the field via Lewin's field theory, the concept of ambivalence and examinations of its cognitive representation (in Bleuler's terms, intellectual ambivalence) did not make its way into social psychology until much later. This was likely due to the advent and dominance of cognitive consistency theories such as the theory of cognitive dissonance (Festinger, 1957), which generated an increased emphasis on individuals' tendency to bring their cognitions into congruence rather than on the nature of incongruent cognitions per se. Moreover, there was a lack of empirical operationalizations of ambivalence in terms of inconsistent evaluations, preventing a systematic investigation of the construct (Thompson, Zanna, & Griffin, 1995). It was not until the seminal theoretical and methodological work of Scott (1969) and Kaplan (1972), in which positive and negative evaluations were independently assessed, that the concept of ambivalence was reintroduced to social psychology as a property of *attitudes*, and finally instigated a surge of interest in the possibility of simultaneous positive and negative evaluations of an object from the 1990s onward. Attitude researchers have since dedicated considerable attention to definitional and measurement issues, and have related attitudinal ambivalence to central topics of attitude research such as attitude strength and structure, information processing, persuasion, and the guidance of behavior (as reviewed in Conner & Sparks, 2002; Jonas et al., 2000a; Priester & Petty, 1996; Thompson et al., 1995, Ullrich, 2012; van Harreveld, van der Pligt, & de Liver, 2009).

An Integrative Definition

As incomplete an overview they may provide, the foregoing examples illustrate that theoretical foci as well as definitions of the phenomena examined under the umbrella of ambivalence vary vastly across psychological research areas, perhaps creating some ambiguity around the meaning of ambivalence. Yet these different views of ambivalence all resonate with Bleuler's (1914) original tripartite model, and are concisely summarized in a conceptualization offered by Sincoff (1990, p. 43): "Ambivalence is broadly defined as overlapping approach-avoidance tendencies, manifested behaviorally, cognitively, or affectively, and directed toward a given person, experience, or other object, as well as toward a set of objects."[1]

This definition notably implies the basic *motivational tendencies* of approach vs. avoidance (cf. Elliot, 2006) to underlie the observable manifestations of ambivalence, in line with Lewin's (1935) and N. E. Miller's (1944) notions of a motivational conflict between the pushes and pulls of ambi-valenced objects. With this broad background in mind, the focus shall next be narrowed to such motivational ambivalence in the pursuit of personal strivings and the present conceptualization of goal ambivalence.

[1] This conceptualization can be extended even further to related constructs. For instance, on the affective level, the contention that positive and negative emotional valence are independent dimensions has led to a general interest in the investigation of mixed emotions (Aaker, Drolet, & Griffin, 2008; Hong & Lee, 2010; Hui, Fok, & Bond, 2009; Larsen & McGraw, 2011; Larsen, McGraw, & Cacioppo, 2001; Williams & Aaker, 2002), and the contradiction of affective meaning through embodied affective reactions has been studied as affective incoherence (Centerbar, Clore, Schnall, & Garvin, 2008). At the cognitive level, ambivalence is mirrored in phenomena of decisional balance (Janis & Mann, 1977; Prochaska & DiClemente, 1983) or within-alternative conflict (Fischer, Luce, & Jia, 2000; Luce, Jia, & Fischer, 2003) in decision making. Overlapping approach and avoidance tendencies may also be operationalized as the co-existence of antithetic personality dispositions, such as extraversion and neuroticism (Robinson, Wilkowski, & Meier, 2008), the behavioral activation and behavioral inhibition systems (Berkman, Lieberman, & Gable, 2009), and social approach and avoidance motivation (Nikitin & Freund, 2010).

Ambivalence in the Pursuit of Personal Goals

Goals are the cornerstones of motivation. As internal representations of future states, they affect emotions and cognitions, and drive the direction, intensity, and persistence of behavior (Austin & Vancouver, 1996; Bargh, Gollwitzer, & Oettingen, 2010; Elliot & Fryer, 2008; Fishbach & Ferguson, 2007). Comparing various definitions of the goal construct, Elliot & Fryer (2008, p. 244) concluded that "[a] goal is a cognitive representation of a future object that the organism is committed to approach or avoid". Applying Sincoff's (1990) conceptualization of ambivalence to this definition, goal ambivalence should be expected to occur when the motivational tendencies to approach and avoid such a future object collide. This understanding of goal ambivalence concurs with Bleuler's observation of ambitendence and even more directly mirrors Lewin's and Miller's notion of approach-avoidance conflict.

Striving Ambivalence as Anticipated Affect

How might approach-avoidance conflict materialize in the pursuit of *personal goals,* the future states that people themselves consciously define and seek to attain in their lives (cf. Brunstein, 1993; Cantor & Kihlstrom, 1987; Emmons, 1986; Klinger, Barta, & Maxeiner, 1980; Palys & Little, 1983; Novacek & Lazarus, 1990)? Emmons (1986; Emmons & King, 1988) provided a first answer to this question in his work on personal strivings, higher-level personal goals that guide and structure people's daily behavior. As is common in research on personal goals (for more recent examples, see Little, Salmela-Aro & Philipps, 2007), strivings were made amenable to scientific inquiry by first assessing study participants' idiographic strivings in a free listing format, and subsequently instructing them to rate these strivings on a number of standardized dimension such as value, commitment, difficulty, or confidence. Striving ambivalence constituted one of these dimensions. Starting from the Lewinian notion that "by definition, an ambivalent striving possesses both desirable and undesirable features, fostering approach-avoidance tendencies" (Emmons, 1986, p. 1065), ambivalence was measured by letting

participants respond to the question how unhappy they are or would be if they succeeded at the striving. Two assumptions underlie the logic behind this item (which was adapted from a measure of goal negativity used by Klinger et al., 1980). The first assumption coincides with the premise of the telic theories of well-being (see Diener, 1984) that guide Emmons' personal strivings approach, namely, that success at striving for goals one is committed to results in positive affective experiences. Put simply, when one is motivated to approach a goal, success at this goal leads to happiness. In turn, then, if one anticipates unhappiness at success, it can be inferred that one is motivated to avoid the goal. The second assumption takes the existence of approach tendencies in goal pursuit as a given; the measurement of avoidance tendencies then is sufficient to imply ambivalence. Both of these assumptions are plausible and backed by evidence (e.g., Brunstein, 1993). And yet this one-sided operationalization appears to paint a somewhat incomplete picture of conflict as a "competition between incompatible responses" (N. E. Miller, 1944, p.431).[2]

Emmons' striving ambivalence measure has been applied in a number of further empirical studies and generated some findings regarding its relations to indicators of self-regulation, health, and well-being, attesting to the value of considering it as a property of personal strivings (e.g., Emmons & King, 1988; Kelly, Mansell, & Wood, 2011; Kelly, Wood, Shearman, Phillips, & Mansell, 2011; Romero, Villar, Luengo, & Gomez-Fraguela, 2009; Thomsen, Tønnesvang, Schnieber, & Olesen, 2011). But apart from these sporadic studies, goal ambivalence has not been subject to systematic investigation. To be sure, the idea that goals are not always of unequivocal valence may not necessarily integrate easily into other goal striving frameworks on a theoretical level. But perhaps the relative neglect of the construct is in part also due to the

[2] Admittedly, Klinger and colleagues have continued to use the same item to measure ambivalence and sometimes combined it with a commensurate rating of anticipated happiness, with the difference between the two ratings reflecting the extent of ambivalence (see Cox & Klinger, 2004). However, treating it as one of several goal properties, this approach does again not devote focal attention to ambivalence, and it has primarily been applied to the diagnosis of motivation for behavior change in counseling for alcohol abuse and other therapeutic interventions.

somewhat counterintuitive measurement, which does not align well with the common understanding of ambivalence as a phenomenon that is expressed in two-sided reactions. The present work seeks to address this shortcoming by connecting the conceptualization and measurement of goal ambivalence to existing ambivalence research.

Goal Ambivalence as Evaluative Conflict

So far it can be concluded that goal ambivalence (a) resembles an approach-avoidance conflict, and (b) can be conceived of and measured as a subjectively perceived property of a personal goal. The present work combines these features into a novel approach to the goal ambivalence construct, which is further informed by turning back to the second part of Sincoff's (1990) ambivalence definition. Emmons' (1986) notion of ambivalence as a subjective property of a personal goal is retained; however, it is extended by including opposing approach and avoidance tendencies at the affective, cognitive, and behavioral level. Hence, goal ambivalence shall be defined in this work as the *subjective appraisal of conflicting affective, cognitive, or behavioral approach and avoidance tendencies toward a personal goal*.

The implications of this definition for the further delineation and treatment of the construct are two-fold: First, it translates the concept of a physical – in the sense of both physical forces, and physical behavior – approach-avoidance conflict into the *subjective experience of conflicting reactions* toward the goal. Second, the notion of an evaluative appraisal based on affective, cognitive, and conative components is reminiscent of attitude definitions (cf. Eagly & Chaiken, 2007). Thus, one could say that this conceptualization of goal ambivalence resembles that of an *ambivalent attitude* toward a personal goal.

It follows from the nature of the goal construct that goal ambivalence conceptually differs from attitudinal ambivalence toward other objects in certain regards. For one thing, as implied by Emmons' striving ambivalence measure, there exists an inherent asymmetry in that the end points of goal pursuit are desired states that are by definition positively valenced (Austin &

Vancouver, 1996; Fishbach & Ferguson, 2007)[3]. For the pursuit of a planned course of action to commence, its positive aspects have to outweigh negative aspects (Eyal, Liberman, Trope, & Walther, 2004; Heckhausen & Gollwitzer, 1987; Prochaska et al., 1994). Consequently, the reference base for goal ambivalence is always an overall positive evaluation, in contrast to attitudes toward other objects, which may be positive, negative, or indifferent (cf. Ullrich, 2012). The occurrence of ambivalence during goal pursuit is therefore a function of increased avoidance tendencies (or negative evaluations), and/or reduced approach tendencies (or positive evaluations) relative to this default approach orientation.

Further, in contrast to attitudinal ambivalence, experiencing ambivalence toward a personal goal should be aversive in most – if not all – cases. Conflict between opposing approach and avoidance goal-directed forces creates an uncomfortable "state of tension" (Lewin, 1935, p. 94). On the contrary, tension, and resultant discomfort, can be a consequence of simultaneous positive and negative evaluations of attitude objects, but not inevitably so (Jonas et al., 2000a; Newby-Clark, McGregor, & Zanna, 2002; van Harreveld, van der Pligt, et al., 2009). This difference results from the fact that attitudes toward other objects (including evaluations of specific behaviors, see Conner & Sparks, 2002) are not necessarily self- and action-relevant, whereas setting a personal goal entails a commitment to act. Inconsistent evaluations and conflict toward a course of action are aversive because they impede efficient action regulation, which in turn leads to impaired psychological functioning (Emmons & King, 1988; Harmon-Jones, Amodio, & Harmon-Jones, 2009). In support of this view, numerous studies of personal goals have shown that goal-related conflict in general is associated concurrently and longitudinally with reduced well-being and health (e.g., Brandstätter, Herrmann, & Schüler, 2013; Cantor, Acker, &

[3] Note that not all definitions of goals include the criterion of positive value (cf. Elliot & Fryer, 2008). However, even in the case of avoidance personal goals (e.g., not failing an exam), the resulting end state is desirable.

Cook-Flannagan, 1992; Emmons & King, 1988; Kehr, 2003; Palys & Little, 1983; Riediger & Freund, 2004; for a review, see Riediger, 2007).[4]

Goal Ambivalence vs. Cognitive Dissonance

Upon further scrutiny of the attitudinal ambivalence literature, one may also ask how goal ambivalence differs from *cognitive dissonance* (Festinger, 1957; Harmon-Jones et al., 2009). Both cognitive dissonance and attitudinal ambivalence involve incompatible cognitions or evaluations and researchers agree that they are closely related phenomena. Different criteria have been put forward to differentiate between the two constructs: Some have argued that dissonance is based on an inconsistency between one's cognitions and one's behavior (or cognitions about one's behavior), whereas ambivalence is based on inconsistencies between cognitions regarding an object; therefore, performing a certain behavior is a precondition for the occurrence of dissonance, but not ambivalence (Jonas et al., 2000a). This reasoning has been extended further to incorporate the degree of commitment: Ambivalent attitude holders have not yet decided between opposing evaluations, whereas individuals who experience dissonance have made the choice to commit to a decision or course of action which conflicts with their preexisting cognitions (van Harreveld, Rutjens, Rotteveel, Nordgren, & van der Pligt, 2009; van Harreveld, van der Pligt, et al., 2009). Another differentiation relies on the criterion that cognitive dissonance is by definition aversive, whereas this is not necessarily the case for attitudinal ambivalence (Rydell, McConnell, & Mackie, 2008; van Harreveld, Rutjens, et al., 2009). These criteria, commitment to a course of action, and adversity of the experience, appear congenial to those named above to distinguish goal ambivalence from other forms of attitudinal ambivalence, begging the question whether the phenomenon under examination might not aptly be termed dissonance rather than ambivalence. However, a final and important differentiation between

[4] The relations of goal ambivalence to other forms of goal-related conflict are discussed in more detail in the final chapter of the thesis.

cognitive dissonance and attitudinal ambivalence has been made based on the paradigms applied and questions asked in both research traditions (Newby-Clark et al., 2002; cf. Harmon-Jones et al., 2009): Cognitive dissonance has typically been experimentally manipulated and its consequences for attitudes and behavior observed, without directly assessing the degree of cognitive inconsistency. Dissonance-based arousal is then inferred from attitude or behavior change, or measured as negative affect or unspecific discomfort. On the other hand, research on attitudinal ambivalence has focused on measuring between-person differences in ambivalence toward specific objects and their relations to other attitude properties or constructs of interest. The latter approach concurs with the emphasis of the present work on the experience of conflicting evaluative reactions toward a goal, hence the term goal ambivalence is retained for the present purposes. These purposes are detailed as follows.

Objectives of the Present Work

Ambivalence does not play an appreciable role in contemporary research on goals, despite the reception of the construct in other areas of psychology. Two possible reasons for this relative absence from the goal striving literature come to mind. One, as speculated earlier, is the lack of adequate measurement. Alternatively, it could be the case that goal ambivalence is simply not relevant to the study of goal striving. It follows from these possible reasons that the present thesis has two main objectives. The first is to provide reliable and valid measurement of goal ambivalence in accordance with the conceptualization of the construct as specified above. This then lays the foundation for the second, superordinate objective, namely, to provide empirical evidence for goal ambivalence as a relevant variable in personal goal pursuit.

Measurement of Goal Ambivalence

Operationalizations of goal ambivalence are as varied as its applications. For instance, they differ depending on whether ambivalence is conceived of as a trait or state variable, and

whether it is assumed to be consciously accessible or not (Sincoff, 1990). In the present work, goal ambivalence is treated as a subjective appraisal of reactions toward a specific goal. Therefore, although it may in part be determined by enduring dispositions, it is expected to vary within a person across different goals and domains. Further, this appraisal is assumed to be represented in consciousness and hence accessible through self-report measures.

The conceptualization of ambivalence as an evaluative appraisal comparable to an ambivalent attitude toward a goal implicates that measurement might also be borrowed from research on attitudes, an area where the debate around appropriate ambivalence measures has arguably been most elaborate. Within attitude research, a fundamental distinction is made between measures of ambivalence as a *structural property* of attitudes, and measures of *meta-attitudinal judgments* of ambivalence; this categorization is variably also referred to as indirect vs. direct, objective vs. subjective, formula-based vs. experienced, or potential vs. felt ambivalence measures (Armitage & Arden, 2007; Conner & Sparks, 2002; Jonas et al., 2000a; Priester & Petty, 1996; Thompson et al., 1995). Structural measures are usually created by separately assessing the positive and negative evaluations of an attitude object, and then combining the positivity and negativity scores into indices that reflect definitional criteria such as the intensity and similarity of evaluations. Measures of meta-attitudinal judgments, on the other hand, are formed by aggregating ratings on items that assess the subjective appraisal of simultaneous conflicting evaluations. The latter approach of meta-attitudinal ambivalence judgments corresponds to the present conceptualization of goal ambivalence as a subjectively experienced conflict between evaluative reactions, and was thus adopted for the present work.

In accordance with the notion of a tripartite expression of approach and avoidance tendencies, a scale was designed to gauge conflicting affective, cognitive, and conative reactions toward the goal. In addition, items referring to affective-cognitive inconsistency were included, as such "heart vs. mind" conflict likewise mirrors incompatible evaluative reactions (Conner & Sparks, 2002; Thompson et al., 1995). Reports of extant meta-attitudinal ambivalence measures

(e.g., de Liver, van der Pligt, & Wigboldus, 2007; DeMarree, Morrison, Wheeler, & Petty, 2011; Jonas et al., 2000b; Newby-Clark et al., 2002; Priester & Petty, 1996; Priester, Petty, & Park, 2007; Riketta & Ziegler, 2007; Thompson et al., 1995) were consulted in order to formulate two items for each of the four dimensions. The resulting 8-item scale can be found in the Appendix and was administered in the empirical studies presented in the subsequent chapters. Although it is by no means the goal of this thesis to provide comprehensive documentation of the psychometric properties of this scale, delivering some evidence for the reliability and validity of measurement is a prerequisite, and in fact, overlaps with the second objective of demonstrating the relevance of goal ambivalence.

Relevance of Goal Ambivalence

Is goal ambivalence a relevant experience in personal goal pursuit? This was the overarching question informing the design of the empirical studies presented in this work. The conciseness of the question, of course, comes at the cost of using the rather vague term relevance. To specify, there are at least four ways to think about the relevance of a psychological construct. First, there is *theoretical relevance*: Does a construct extend existing nomological networks in a meaningful way, by tying in with existing constructs without sharing too much conceptual overlap? Does it generate novel hypotheses regarding the prediction of observable phenomena that can again be embedded in or related to extant theory? Second, there is relevance as *empirical prevalence*: Does the construct describe a "real" phenomenon or a set of phenomena that can be assumed to exist at a scale beyond random outliers? Can these phenomena be captured by the operationalizations of the construct? Third, there is relevance as *empirical predictive power*: Do the operationalizations of the construct relate to other variables in theoretically hypothesized ways? Do the operationalizations explain substantial amounts of variance in these variables? And is this variance non-redundant with the variance explained by the operationalizations of other constructs? Fourth, there is relevance as *practical usefulness*: Does the construct contribute to the

understanding of phenomena that are deemed relevant on the individual or societal level? Are these insights applicable to practical contexts?

All of the above questions guide the present work with varying emphasis, focusing on relations of goal ambivalence to indicators of *self-regulation, health, and well-being* as criteria that are frequently examined in personal goal striving research and arguably relevant to the everyday lives of most individuals. The next section brakes down the objectives to the level of empirical investigation and, in so doing, gives a preview of the thesis' Parts I to III.

Table 1

Overview of the central characteristics of Parts I to III

	Part I	Part II	Part III
A) Main objective	Integration in established model of personal goal striving	Conceptual replication of classic motivational effect in personal goal pursuit	Promotion of a goal striving perspective on psychological pregnancy research
B) Role of ambivalence	Mediator	Moderator	Predictor
C) Personal goal	Academic	Academic, athletic, business	Reproductive
D) Criterion variables			
Self-regulation	Perceived goal progress	Goal distance-dependent changes in commitment	Coping strategies
Health			Perinatal stress and depressive symptoms (concurrent and prospective)
Well-Being	Life satisfaction, affect (concurrent and longitudinal change)		Life satisfaction (concurrent and prospective), affect (short-term fluctuation)
E) Converging effects	Replication of striving ambivalence effects Relation to structural ambivalence measure	Prediction of motivation gradients as a measure of approach-avoidance conflict	Prediction of reduced well-being at goal success Replication of effects on well-being
F) Incremental effects	Regulatory mode	Goal value and expectancy	Neuroticism and pregnancy-specific stress
G) Applied value	Explain freshman adjustment	Understand dynamics of personal goal pursuit	Predict outcomes that are large scale concerns

Overview of the Present Work

The – theoretical, empirical, and potentially, practical – implications of goal ambivalence for self-regulation, health, and well-being are examined in three empirical research projects that constitute the body of this thesis. Table 1 summarizes the features of these three projects as they relate to the overarching objective of demonstrating the relevance of goal ambivalence.

The first row of the table states (A) the main research objective of each project, that is, its principal *theoretical contribution*. In which ways ambivalence is assumed to implicate self-regulation, health, and well-being outcomes is defined by (B) its function as a mediator, moderator, or predictor in the theoretical models.

The table continues to list (C) the nature of the personal goals under investigation in the studies. It should be noted that in the present work, a nomothetic rather than idiographic approach is taken: Contrary to the common practice in personal goal research of letting study participants generate a number of their idiosyncratic personal goals, all participants are instead asked to provide ratings of the same focal goal. Two considerations were pivotal in choosing this procedure: First, it allows for examining the degree of *prevalence and variance* of goal ambivalence within and across the samples while holding constant goal domain and content. Second, through selection of context and participants it is possible to ascertain that individuals are currently in the process of pursuing their goals, so that the ambivalence assessed actually reflects goal ambivalence toward a personal commitment already made, and not decisional ambivalence as to whether or not to take up the pursuit of a certain goal (cf. Heckhausen & Gollwitzer, 1987). Despite this restriction in the variety of possible personal goals, it was attempted to consider in the present studies a range of goals across different life domains that arguably may be assumed to reflect personal decisions to commit to a course of action.

The subsequent sections of Table 1 concern the *empirical implications* of goal ambivalence, with one row (D) specifying the indicators of self-regulation, health, and well-being as they appear across the three parts. Addressing different aspects of the new goal ambivalence

measure's construct validity, there follow (E) indications of its capacity to produce findings in line with prior operationalizations of striving ambivalence, attitudinal ambivalence, and approach-avoidance conflict, and (F) other relevant measures included in the studies to test the predictive power of the goal ambivalence measure over and above these variables.

The final row (G) names potential implications of the research results for *practical applications*. However, these remain speculative, as the empirical findings presented in this work provide a mere starting point for further investigation rather than a solid base from which conclusions are justified.

Part I: Goal Ambivalence in the Self-Concordance Model of Personal Goal Striving

Part I seeks to provide evidence for the relevance of goal ambivalence by demonstrating that it can be embedded in, and extend, a well-established model of personal goal striving, namely, the self-concordance model (Sheldon & Elliot, 1999). Studying for a degree constitutes the focal goal across three correlational studies, two cross-sectional and one longitudinal, in samples of first year university students. It is hypothesized that a relatively more self-concordant degree goal, i.e., pursuing an education that provides a good fit to a student's values and interests, is appraised as relatively less ambivalent. By proposing goal ambivalence as a mediator of self-concordance effects, the studies examine its function as an explanatory variable in the model. They thereby also test associations between goal ambivalence and subjective well-being, and in Study 3, goal progress as in indicator of self-regulation. These very relations provide a test of construct validity, as they should concur with theoretical expectations and prior evidence (e.g., Emmons & King, 1988) in exhibiting negative effects of goal ambivalence on concurrent levels and longitudinal changes in well-being as well as the regulation of goal-directed action. Further, the validity of the goal ambivalence measure as an indicator of two-sided evaluative reactions is tested by relating it to structural measures adapted from attitude research (Studies 1 and 2). Study 2 additionally rules out an alternative explanation by controlling for dispositional differences in self-regulatory functions (Kruglanski et al., 2000). In sum, Part I aims at collecting initial evidence

to support the prediction that the new goal ambivalence measure yields consistent and theoretically valid results that contribute to the explanation of previous findings within research on the self-concordance model. In so doing, it also adds to prior research on first year students' adjustment to university.

Part II: Goal Ambivalence and the Goal Gradient Effect

Part II focuses on the adequacy of goal ambivalence as an approximation of the widely cited, but empirically rarely investigated concept of approach-avoidance conflict toward a goal. In line with predictions by Lewin (1935; 1951) and N. E. Miller (1944), this notion is tested in the context of another iconic motivational axiom, the goal gradient or "goal looms larger" effect (Hull, 1932; Förster, Higgins, & Idson, 1998). Goal ambivalence is expected to effect a negative influence of goal proximity on goal motivation, that is, ambivalent goals are expected to "loom darker" closer to a goal. The goal gradient effect is transferred to personal goal pursuit to test this hypothesis. In contrast to the behavioral experiments in which the goal gradient hypothesis was originally tested, not only approach-avoidance conflict, but also the goals themselves as well as goal proximity and goal motivation (viz., commitment) are treated as cognitive representations rather than physical entities or observable behavior. Correlational and experimental evidence for goal ambivalence as a moderator of the effect of goal proximity on commitment is collected across four studies with different personal goals. The two basic components of motivation, goal value and expectancy, are included in the studies in order to ensure that the effect of goal ambivalence is not only one of low goal motivation, but actually due to goal-related conflict. Part II is thus primarily designed to test the construct validity of the goal ambivalence measure. However, it can also contribute theoretically to the study of goal distance-dependent changes in motivation, and on a more general level, further the understanding of self-regulation in the pursuit of personal goals.

Part III: Goal Ambivalence as a Motivational Window on Pregnancy

The final empirical chapter turns from quintessentially motivational topics to the psychology of pregnancy. Questions regarding pre- and postnatal maternal psychological processes have been studied extensively, but very rarely from a motivational or goal striving perspective. Based on the notion that having a child is a prevalent and consequential personal goal, ambivalence toward this goal during pregnancy is examined in relation to well-being, stress, and coping in two correlational studies. The scope of goal ambivalence's implications is broadened to include health outcomes that have been a focus of pregnancy research, namely, perinatal maternal stress and depression, while attempting to replicate associations with general well-being measures. Part III also addresses the self-regulatory issue of coping with the experience of ambivalence in a situation where goal disengagement is difficult. Evidence for the reliability and validity of the goal ambivalence measure is gathered by examining associations with well-being, stress, and coping measures not only between persons, but also at the level of within-person daily fluctuations (Study 2), thus tapping into the theoretically assumed processes. An additional test of construct validity is inherent in the prospective prediction of well-being and health outcomes post childbirth (Study 1): Negative effects on these criteria correspond to the anticipated negative affect at striving success that characterizes Emmons' striving ambivalence measure. The robustness and added value of the goal ambivalence effects is probed by examining its predictive power beyond the previously established effects of pregnancy-specific stressors (Studies 1 and 2), as well as considering interindividual differences in neuroticism as a possible dispositional explanation (Study 1). To the extent that goal ambivalence contributes to the prediction of the outcome variables, the results of Part III have the potential to stimulate the consideration of motivational explanations for issues of perinatal health and well-being that as yet remain challenges for prevention and intervention.

Following Parts I to III, an overall discussion of the empirical findings provides the base for an outlook on possible directions for future research on goal ambivalence.

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PART I

UNCONFLICTED GOAL STRIVING: GOAL AMBIVALENCE AS A MEDIATOR BETWEEN GOAL SELF-CONCORDANCE AND WELL-BEING

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Abstract

This research introduces low goal ambivalence as a relevant correlate of goal self-concordance (Sheldon & Elliot, 1999). In three studies, we tested the hypothesis that university freshmen's ambivalence toward the goal of completing their degree mediates the effect of goal self-concordance on subjective well-being. In Studies 1 and 2, differences in goal ambivalence accounted for effects of goal self-concordance on concurrent life satisfaction and affect at the end of the freshman year. Study 3 evidenced a longitudinal mediation effect of goal ambivalence on one-year post-entry increases in life and study satisfaction, which were explained through perceptions of goal progress at the end of the freshman year. Decomposing self-concordance into autonomous and controlled motivation revealed non-redundant parallel effects for both subcomponents. These results point to ambivalence as a significant experience in goal pursuit and suggest that it represents an additional explanatory variable in the self-concordance model of goal striving and longitudinal well-being.

Introduction

Consider a high school graduate with exceptional creative talent and a strong affinity for the performing arts. Even if encouraged by her parents to freely choose her field of further education, she may feel obliged to not depend on their support and thus, to pursue a vocation that promises financial security. Instead of following her genuine interests and trying for drama school, she might instead enroll in a business major with better career prospects.

Research on goal self-concordance has shown that "not all personal goals are personal" (Sheldon & Elliot, 1998), indicating that personal endeavors are sometimes chosen for perceived external demands (e.g., financial independence) rather than inner desires (e.g., enjoyment of performing on stage). These "non-concordant" goals result in impaired striving and well-being compared to goals that are more concordant with the self (Sheldon & Elliot, 1999). We propose that this is the case because individuals who strive for non-concordant goals experience conflicting reactions, i.e., ambivalence toward these goals. In the case of our freshman business student, she may be strongly committed to successfully pursuing her degree, but at the same time experience mixed emotions or evaluative reactions, and feel torn between conflicting desires at the thought of this goal. This in turn may make her unhappy and impede her effort to consistently work toward goal attainment.

Goal Self-Concordance

The self-concordance model of goal striving (Sheldon & Elliot, 1999), developed as an extension of *self-determination theory* (Deci & Ryan, 2000), aims at explaining longitudinal increases in well-being and adjustment through the successful pursuit of self-concordant personal goals. It draws from self-determination theory the assumption that goal-directed behavior is instigated through qualitatively different forms of motivation, ranging on a continuum of increasingly internalized perceived loci of causality. Specifically, reasons for goal selection can lie on the more controlled end of the continuum (extrinsic or introjected motivation), if goals are pursued due to

external pressure or feelings of obligation, or on the more autonomous end (identified or intrinsic motivation), if goals are chosen because they truly represent personal values and interests or because their pursuit provides fun and enjoyment. Goal self-concordance describes the relative autonomy of personal goals, that is, the extent to which their underlying motivations are autonomous rather than controlled. Self-concordant personal goals have been associated with concurrent well-being across different life domains and cultures (Sheldon et al., 2004). More importantly, in the tradition of telic theories of well-being (Diener, 1984), several prospective studies have shown that the pursuit of self-concordant personal goals leads to longitudinal changes in well-being through goal progress and attainment (e.g., Sheldon & Elliot, 1999).

Because self-concordant goals reflect people's authentic values and interests, their pursuit is assumed to be energized by consistent motivation. There is ample evidence that goal self-concordance is related to goal progress and attainment through effective self-regulation, such as planning and effort expenditure (for a meta-analytic overview, see Gaudreau, Carraro, & Miranda, 2012). However, empirical research has been silent about the *phenomenological experience* that accompanies the pursuit of personal goals differing in their degree of self-concordance; it therefore remains somewhat unclear *why* self-concordant goals lead to effective self-regulation and progress. Additionally, as Gaudreau et al. (2012) pointed out, previously examined mediators in the self-concordance model have generally been approach-oriented, but avoidance-oriented mechanisms have been neglected. We contend that successful and satisfying goal pursuit requires not only the *presence* of sufficient *approach* tendencies, but also the *absence* of inhibiting *avoidance* tendencies. The present research thus focuses on the degree of contradictory (i.e., approaching and avoiding) action tendencies or goal evaluations as a more proximal explanation for the known effects of self-concordance. In the words of Koestner, Lekes, Powers, and Chicoine (2002, p. 234), we predict that "self-concordance prevents [the occurrence of] ambivalence and conflict from affecting one's effort and persistence toward goal completion" and that the absence

of experienced ambivalence about the respective goal explains the positive influence of self-concordance on well-being.

As a measure of relative autonomy, self-concordance is operationalized by subtracting ratings of controlled motivation from ratings of autonomous motivation (Sheldon, 2002). This approach has been criticized on the grounds of non-significant empirical correlations between autonomous and controlled goal motivations (Koestner, Otis, Powers, Pelletier, & Gagnon, 2008), which stand in contradiction to the theoretically assumed continuum of internalization. Moreover, it has been repeatedly found that only autonomous, but not controlled motivation, predicts outcomes such as self-regulation and goal progress (for meta-analytic overviews see Gaudreau et al., 2012; Koestner et al., 2008), goal attainment (e.g., Sheldon & Elliot, 1998), and satisfaction (e.g., Bono & Judge, 2003). These findings imply that effects of overall self-concordance on goal progress and attainment may be driven solely by autonomous motivation. In the present research, in addition to the global self-concordance index, we thus separately examine its subcomponents, autonomous and controlled motivation, with respect to their relations to our proposed mediator, goal ambivalence.

Goal Ambivalence

Ambivalence can broadly be defined as the presence of simultaneous conflicting reactions toward the same object, person, or course of action, manifesting at the cognitive, affective, and/or behavioral level (Jonas, Broemer, & Diehl, 2000; Sincoff, 1990). Within the framework of personal strivings, goal ambivalence has been conceptualized as an approach-avoidance conflict (Emmons, 1986), in which a person simultaneously hopes for and fears the attainment of a personal striving. This type of conflict is likely to interfere with the actions necessary to progress toward the goal: avoidance tendencies inhibit approach tendencies while at the same time demanding additional resources for dealing with the state of inconsistency. Such struggling to navigate toward an end state that appears both desirable and undesirable should hardly lead to

feelings of happiness and blissful coherence, both along the way and at goal attainment. It thus comes as no surprise that personal striving ambivalence has been related to rumination and behavioral inhibition as well as to indicators of ill-being, such as depression and distress (Emmons & King, 1988). In other words, people who are ambivalent about their strivings dwell instead of acting upon them, while feeling anxious and unhappy. Though studies on goal ambivalence are rather scarce, research on ambivalence in other fields, e.g., the realm of attitudes (Jonas et al., 2000; van Harreveld, van der Pligt, & de Liver, 2009), concurs with these findings, overall suggesting that the experience of ambivalence may provide a link between goal motivations and their self-regulatory and well-being outcomes.

In the present research, we intend to reanimate goal ambivalence research and extend and refine the operationalization of the construct. Previous measurement (Emmons, 1986) has asked respondents to estimate how unhappy they would feel at goal attainment. This one-item measure certainly adequately reflects the *avoidance* component of an approach-avoidance conflict, but it does not tap into the actual *conflict of contradictory reactions*, which in our view is quintessential to the definition of ambivalence. Though this measure has generated findings conforming to theoretical expectations, it has failed to reliably relate to well-being (Kelly, Wood, Shearman, Phillips, & Mansell, 2012; Romero, Villar, Luengo, & Gomez-Fraguela, 2009). For instance, in one study, only distress about goal ambivalence, but not ambivalence itself, was associated with a measure of depression and anxiety (Kelly et al., 2012). This may be owed to the fact that ambivalence-induced discomfort is only experienced when positive and negative reactions about an object are simultaneously accessible (Newby-Clark, McGregor, & Zanna, 2002), which may not have been captured by the rather narrow measure of goal ambivalence. We thus take a new and broadened measurement approach, drawing on attitudinal ambivalence research (Jonas et al., 2000) to create a measure of experienced goal ambivalence which explicitly reflects the extent of felt conflict between contradictory reactions. Applications of ambivalence concerning behavioral regulation in the stages of change model (Armitage & Arden, 2007), as well as self-ambivalence (Riketta &

Ziegler, 2007), have also been derived from attitude measures, demonstrating that these measures represent a valid and useful method of assessing conflicting evaluations of one's own actions or self-concept. Though apparently pertinent, this method has not been employed in the analysis of personal goals so far.

Goal Ambivalence as a Mediator of Goal Self-Concordance Effects

Even though direct evidence for a negative relationship between goal self-concordance and goal ambivalence is lacking, several extant findings portend such an association. First, examples of particularly self-concordant pursuits – among the highest in self-concordance reported by Sheldon and Kasser (1998) – are spiritual goals. Spiritual strivings have been shown to be less ambivalent than non-spiritual strivings (Emmons, Cheung, & Tehrani, 1998). Second, pertaining to the experience of intrapsychic conflict in general, in the original paper on the construct (Sheldon & Kasser, 1995), goal self-concordance predicted fewer conflicts between self-roles and less distress related to these conflicts. Finally, self-concordance has also been found to minimize the risk of an action crisis in personal goals, a situation that describes the conflict between continuing and disengaging from further goal pursuit (Herrmann & Brandstätter, 2013).

Decomposing self-concordance into its subcomponents and turning to work on self-determination theory in general, reveals even stronger theoretical connections between goal motivations and conflicting reactions. Controlled motivation has been commonly referred to as a state of conflict. Extrinsically motivated action evidently holds the potential for conflicts between external demands or rewards and internal motivations. This may hold true to an even greater extent for introjected motivation: here external motivations have been somewhat internalized, in the sense that the person feels compelled by internal demand to carry out a certain behavior, but they have not been completely integrated in the self, presumably leading to inner pressures and conflicts (Deci & Ryan, 2000; Markland, Ryan, Tobin, & Rollnick, 2005; Ryan & Connell, 1989).

However, controlled motivation represents only one end of the motivational spectrum. We expect that the effect of self-concordance on goal ambivalence should certainly not only be determined by the conflict-inducing potential of controlled goal pursuit. Increasingly autonomous motivation should also generate lower levels of ambivalence: Identification with a goal and its integration into the self are thought to create a sense of ownership and strong volition (Deci & Ryan, 2000), so that little conflict should be experienced about the desirability of the goal or engagement in goal-directed behavior. These unambiguously positive feelings toward the goal would then maintain stable motivation and consistent effort.

Empirical evidence indicating associations between controlled vs. autonomous forms of motivation and the actual experience of ambivalence comes from a study on personal strivings, in which goal ambivalence loaded on an "externality" factor together with extrinsic and (negatively) intrinsic striving motivation (Romero et al., 2009). In another study on political motivation, voters with introjected reasons for participating in an election anticipated both positive and negative emotions should the election lead to their preferred outcome, whereas identified motivation was associated only with pleasant emotions (Koestner, Losier, Vallerand, & Carducci, 1996). Mixed emotions about an aspired end state clearly mirror the conception of goal ambivalence. Furthermore, introjection was positively and identification negatively related to the reliance on others when making political decisions (Study 1). Such malleability through external information is a well-established characteristic of ambivalent attitudes (Bell & Esses, 2002).

In sum, the research outlined above leads us to hypothesize that the relative autonomy, i.e., self-concordance of a personal goal will be negatively related to goal ambivalence. Building on the known detrimental effects of goal ambivalence on self-regulation and well-being, we further predict that goal ambivalence will act as a mediator in the self-concordance model, reflecting the phenomenological experience that explains the respective effects of self-concordance.

The Present Research

We tested our hypotheses in the academic domain, examining university freshmen's motivation and adjustment. Pursuing postsecondary education is an important life goal for many high school graduates as well as a major developmental transition. Previous research has found the motivations underlying study goals to affect this transition across different populations. For example, self-concordance of achievement goals predicted Finnish adolescents' educational trajectories after secondary school through school engagement (Vasalampi, Salmela-Aro, & Nurmi, 2009). In a sample of Belgian high school students, relative autonomous motivation for planning to go to university was positively associated with life satisfaction (Niemiec et al., 2006). And US freshmen's autonomy of goals for attending college predicted increases in social and emotional adjustment over the first semester (Conti, 2000). Clearly, the reasons for pursuing a degree seem to matter for first year students' development and well-being. In comparison, there is little research on ambivalence in educational goal motivation. One study suggests that ambivalence may have negative effects on transitional adjustment (Kasperzack, Ernst, & Pinquart, 2014): German high school graduates' experienced ambivalence regarding their career decision (in most cases, university decision) related to life satisfaction and satisfaction with the chosen career path in a 6-month longitudinal study. We aim to integrate these findings by examining goal ambivalence as a mechanism of the effects of study goal self-concordance on university freshmen's well-being.

We tested our mediation hypothesis in three studies. In Studies 1 and 2, we sought to demonstrate that ambivalence toward the goal of pursuing one's chosen degree mediates the relationship of goal self-concordance with concurrent well-being at the end of the first year of university. Study 3 employed a prospective design to show that goal ambivalence acts as a mediator between self-concordance of study choice and increases in well-being and adjustment to university over the first year through perceptions of goal progress.

Study 1

The objective of Study 1 was to provide evidence for the hypothesized associations between our new measure of goal ambivalence and well-established measures of goal self-concordance and well-being. We further aimed to test the hypothesis that goal ambivalence accounts for the cross-sectional relationship between self-concordance of the study goal and well-being at the end of the freshman year.

Method

Participants and procedure. Participants were recruited toward the end of the spring semester in an undergraduate psychology lecture of a Swiss university. One hundred questionnaires were distributed during the lecture; the attendees were given the option to take part in a study on the assessment of one's studies in exchange for extra course credit. Seventy-seven students (64 women, M_{age} = 23.65 years, SD_{age} = 6.84) returned the questionnaire, 72 of which were in their first year of studying.[5]

Measures. To measure *goal self-concordance*, as in previous research (Sheldon & Kasser, 1995; Sheldon & Elliot, 1999), participants were presented with four reasons for pursuing their goal of "attaining a bachelors' degree in psychology". Two of these reasons were autonomous ("I am pursuing this goal, because it matches my affinities and interests", "- because I believe it is an important and meaningful concern") and two were controlled ("- because I would feel bad [guilty, ashamed, or anxious] if I didn't", "- because it is expected of me or I am receiving something in return for pursuing it"). The four statements were rated on a 7-point Likert-type scale anchored at 1 = *not at all* and 7 = *completely*. We computed the global self-concordance index (Cronbach's a = .47) by subtracting the ratings of the controlled reasons from those of the

[5] Studies 1 and 2 were designed to also test a different research question and included manipulations of psychological distance. Controlling for the experimental condition, as well as for age and gender, did not change mediation results in either of the studies.

autonomous reasons (Sheldon, 2002). Measures of the self-concordance subcomponents were formed by averaging the ratings of the two respective autonomous (r = .25, 95% CI [.03, .45]) and controlled (r = .60 [.43, .73]) motivation items (Sheldon & Elliot, 1998).

We assessed *goal ambivalence* with a measure of experienced ambivalence adapted from research on attitudinal and self-ambivalence (e.g., Priester & Petty, 1996; Riketta & Ziegler, 2007). Two different operationalizations of ambivalence prevail in the attitude literature: Potential ambivalence (also termed objective or structural ambivalence) describes the separate assessment of positive and negative reactions toward an attitude object, which are then computationally integrated into an index of ambivalence. In contrast, experienced ambivalence (also referred to as subjective or felt ambivalence) encompasses the extent of perceived conflict between inconsistent reactions (Jonas et al., 2000; Priester & Petty, 1996). As we were primarily interested in the actual experience of conflict associated with more or less self-concordant goals, we adopted the latter approach, conceiving of goal ambivalence as the coexistence of inconsistent affective, cognitive, and/or conative reactions (see Priester & Petty, 1996) toward a goal that leads to the experience of conflict. Eight items were included that intended to capture conflicting affective (e.g., "When I think about my goal of pursuing a bachelors' degree in psychology, I have mixed feelings"), cognitive ("- my thoughts are both positive and negative"), and conative ("- I am torn") reactions toward the goal as well as affective-cognitive inconsistency ("- my feelings contrast with my convictions"). The eight statements were rated on a 7-point Likert-type scale anchored at 1 = *not at all* and 7 = *completely* (a = .93).

In order to establish construct validity for this scale and demonstrate that the experience of conflict is actually related to simultaneous positive and negative evaluations of the goal, we also included a measure of structural ambivalence that assesses these evaluations more directly. On two separate unipolar 7-point Likert-type scales, respondents were asked to separately indicate their positive and negative feelings toward the goal. The ratings were then combined into an index of structural ambivalence using a formula proposed by Thompson, Zanna, and Griffin

(1995).[6] The index measure was positively related to our experienced ambivalence scale, with the size of the correlation (r = .47, 95% CI [.28, .63]) lying within the range reported for ambivalent attitudes by Priester and Petty (1996).

As in previous research (e.g., Sheldon & Kasser, 1995; Sheldon et al., 2004), we included *life satisfaction* and *affect* as indicators of subjective well-being. Life satisfaction was measured with the 5-item Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffin, 1985; a = .85), answered on a 7-point Likert-type scale anchored at 1 = *not at all* and 7 = *completely*. Affect was measured with the subscales *positive emotions* and *negative activation* from the short version of the Multidimensional Mood Questionnaire (Steyer, Schwenkmezger, Notz, & Eid, 1997). Each subscale consists of four adjectives (e.g., content, anxious) that participants rated with respect to their current state of feelings on 7-point Likert-type scales anchored at 1 = *not at all* and 7 = *very*. The two subscales were highly correlated *(r* = -.69, [-.79, -.55]), and separating them in the analyses did not yield any differing results; we thus aggregated them into an overall measure of positive affect (a = .92).

Results and Discussion

Means, standard deviations, and zero-order correlations among the study variables are presented in Table 1.

Correlational results. As predicted, goal ambivalence exhibited substantial correlations with self-concordance, autonomous, and controlled motivation, as well as the well-being measures. Autonomous and controlled motivation were not correlated. Regressing ambivalence on both forms of motivation simultaneously revealed that the variance explained by autonomous (β = -.43, *B(SE)* = -0.73(0.17), 95% CI [-1.07, -0.39]) and controlled (β = .28, *B(SE)* = 0.27(0.10), [0.08, 0.47]) motivation was not redundant. Self-concordance was positively related to both well-

[6] Different indices of potential ambivalence are used in the literature, but these differ only marginally in their relation to experienced ambivalence (Priester & Petty, 1996).

being measures, although the correlations between its subcomponents autonomous and controlled motivations and affect were rather small.

Table 1

Means (SDs) and zero-order correlations among focal variables in Study 1

Variable	*M (SD)*	1		2		3		4		5	
1. Goal self-concordance	7.90 (3.05)	–									
2. Autonomous motivation	6.03 (0.74)	.52	[.34, .67]	–							
3. Controlled motivation	2.08 (1.30)	-.88	[-.92, -.82]	-.05	[-.27, .18]	–					
4. Goal ambivalence	2.67 (1.27)	-.47	[-.63, -.28]	-.44	[-.60, -.24]	.30	[.08, .49]	–			
5. Life satisfaction	5.41 (1.03)	.36	[.15, .54]	.27	[.05, .47]	-.27	[-.47, -.05]	-.38	[-.56, -.17]	–	
6. Affect	4.98 (1.20)	.22	[.00, .42]	.15	[-.08, .36]	-.17	[-.38, .06]	-.37	[-.55, -.16]	.33	[.11, .52]

Note. Pearson correlations with 95% confidence intervals are shown.

Mediation analyses. Six mediation models with the predictors (a) goal self-concordance, (b) autonomous, and (c) controlled motivation, and the outcomes (a) life satisfaction and (b) affect were tested following procedures suggested by Hayes (2013). Coefficients of mediation paths *a* (path from predictor to mediator), *b* (path from mediator to outcome, controlling for predictor), *c* (total effect of predictor on outcome), and *c'* (direct effect of predictor on outcome, controlling for mediator) were estimated with a series of OLS regression models. Regression weights and coefficients of the indirect effects (paths *a*b*) are shown in Table 2.

As is evident from Table 2, none of the 95% confidence intervals of the indirect effects included zero, implying that goal self-concordance and autonomous motivation exhibited positive, and controlled motivation negative, indirect effects on life satisfaction and affect through goal ambivalence. The indirect effects were medium in size as indicated by their κ^2s (proportion of the maximum possible indirect effect; Preacher & Kelley, 2011), although the estimates were somewhat imprecise, with respective 95% confidence intervals spanning the small-to-large range.

Overall, the correlational results of Study 1 provide evidence for the validity of our measure of experienced goal ambivalence, whereas the mediational findings support our hypothesis of ambivalence as a mechanism of self-concordance effects on well-being.

Table 2

Results of mediation analyses in Study 1: Simple mediation of the effects of goal self-concordance, autonomous motivation, and controlled motivation on life satisfaction and affect through goal ambivalence

	Life satisfaction				Affect			
Effect	*β*	*B*	*SE (B)*	95% CI	*β*	*B*	*SE (B)*	95% CI
Self-concordance								
a	-.47	-0.20	0.04	[-0.28, -0.11]	-.47	-0.20	0.04	[-0.28, -0.11]
b	-.28	-0.22	0.10	[-0.42, -0.03]	-.34	-0.32	0.11	[-0.54, -0.09]
c	.36	0.12	0.04	[0.05, 0.19]	.22	0.08	0.04	[-0.00, 0.17]
c'	.23	0.08	0.04	[-0.00, 0.16]	.06	0.02	0.05	[-0.07, 0.12]
a*b (indirect effect)	.13	0.04	0.02	[0.01, 0.09]	.16	0.06	0.03	[0.01, 0.14]
κ^2		.12 [.04, .24]				.15 [.02, .30]		
R^2		.19				.14		
Autonomous motivation								
a	-.44	-0.75	0.18	[-1.10, -0.40]	-.44	-0.75	0.18	[-1.10, -0.40]
b	-.33	-0.27	0.10	[-0.46, -0.08]	-.37	-0.35	0.11	[-0.57, -0.12]
c	.27	0.37	0.16	[0.06, 0.68]	.15	0.23	0.18	[-0.13, 0.59]
c'	.12	0.17	0.17	[-0.16, 0.50]	-.02	-0.03	0.19	[-0.41, 0.35]
a*b (indirect effect)	.14	0.20	0.09	[0.07, 0.41]	.16	0.26	0.12	[0.08, 0.55]
κ^2		.14 [.05, .25]				.15 [.05, .27]		
R^2		.16				.13		
Controlled motivation								
a	.30	0.29	0.11	[0.08, 0.51]	.30	0.29	0.11	[0.08, 0.51]
b	-.33	-0.27	0.09	[-0.45, -0.09]	-.34	-0.32	0.11	[-0.53, -0.11]
c	-.27	-0.21	0.09	[-0.39, -0.04]	-.17	-0.16	0.10	[-0.36, 0.05]
c'	-.17	-0.13	0.09	[-0.31, 0.04]	- .07	-0.06	0.10	[-0.27, 0.14]
a*b (indirect effect)	-.10	-0.08	0.05	[-0.19, -0.02]	-.10	-0.09	0.06	[-0.28, -0.01]
κ^2		.10 [.02, .24]				.10 [.01, .27]		
R^2		.17				.14		

Note . β = standardized coefficient. *B* = unstandardized coefficient. a = effect of predictor on mediator. b = effect of mediator on outcome, controlling for predictor. c = total effect of predictor on outcome. c' = direct effect of predictor on outcome, controlling for mediator.a*b = product of the a and b paths. R^2 = variance explained in the outcome by predictor and mediator. κ^2 = standardized effect size of the indirect effect, proportion of the maximum possible indirect effect (Preacher & Kelley, 2011). Standard errors and 95% confidence intervals for the indirect effects and κ^2s are bias-corrected bootstrapped estimates obtained with the PROCESS procedure for IBM®SPSS® (Hayes, 2013) based on 1,000 bootstrap samples.

Study 2

In Study 2, we sought to replicate the results of Study 1 with a larger sample. In addition, this study was designed to rule out an alternative explanation for the effects, namely, that our findings were owed to inter-individual differences in general self-regulatory strategies. *Regulatory mode theory* (Kruglanski et al., 2000), which proposes locomotion and assessment as two distinct self-regulatory dimensions, lends itself as a self-regulatory framework theoretically corresponding to our focal constructs. People high in locomotion are action-oriented "doers"; those high in assessment are concerned with evaluating goals, means, and alternatives. Locomotion has been positively related to autonomous motivation and goal self-concordance, whereas assessment has been positively related to controlled motivation and negatively to self-concordance (Kruglanski et al., 2000; Pierro, Kruglanski, & Higgins, 2006). In addition, locomotion has been positively, and assessment negatively, associated with well-being (Kruglanski, Pierro, Mannetti, & Higgins, 2013). Because assessors are focused on comparing positive and negative aspects of a goal and its alternatives (Kruglanski et al., 2000), one could expect that they are also more likely to feel ambivalence, whereas locomotors' focus on implementing goal-related actions may prevent them from experiencing conflicting reactions. It might be then, that people high in locomotion choose more self-concordant goals, and at the same time experience less ambivalence and better well-being, whereas the opposite pattern applies to those high in assessment – potentially accounting for our hypothesized relations. We therefore included measures of dispositional differences in locomotion and assessment in order to test for this possibility.

Method

Participants and procedure. Data for this study were collected the year following Study 1 in the same lecture. Procedures were identical except for the sample size (N = 200) and details of the questionnaires. One hundred and eighty-nine students (154 women, M_{age} = 23.01 years, SD_{age} = 7.19) took part in the study, 182 of which were in their freshman year.

Measures. Measures of goal self-concordance (a = .44), its subcomponents autonomous (r = .25, [.11, .38]) and controlled (r = .45, [.33, .56]) motivation, goal ambivalence (a = .92), life satisfaction (a = .86), and affect (a = .89), were the same as in Study 1. The experienced goal ambivalence scale showed an equally strong correlation (r = .46, [.34, .57]) with the same index measure of potential goal ambivalence as in the first sample.

Locomotion and *assessment* were measured with a German version of the Locomotion and Assessment Questionnaire (Sellin, Schütz, Kruglanski, & Higgins, 2003). Twelve statements representing locomotion (e.g., "When I decide to do something, I can't wait to get started."; a = .73) and 10 statements representing assessment (e.g., "I often critique work done by myself or others."; a = .72) were rated on 6-point Likert-type scales ranging from 1 = *strongly disagree* to 6 = *strongly agree*.

Results and Discussion

Means, standard deviations, and zero-order correlations among the study variables are shown in Table 3.

Correlational results. Intercorrelations among the focal constructs were by and large comparable to those of Study 1; due to the increase in sample size, the strength of the associations was also more precisely estimated (as indicated by narrower 95% confidence intervals; Cumming, 2012). Again, autonomous and controlled motivation were not related, but independently contributed to ambivalence (β = -.40, *B(SE)* = -0.73(0.12), [-.96, -.50] and β = .26, *B(SE)* = 0.25(0.06), [.13, .38], respectively). Except for the lack of a larger correlation between self-concordance and locomotion, locomotion and assessment related to the other constructs as expected, justifying their inclusion as control variables in the following analyses.

Table 3

Means (SDs) and zero-order correlations among focal variables in Study 2

Variable	*M (SD)*	1	2	3	4	5	6	7
1. Goal self-concordance	7.59 (3.23)	–						
2. Autonomous motivation	6.08 (0.74)	.53 [.42, .63]	–					
3. Controlled motivation	2.29 (1.37)	-.89 [-.92, -.86]	-.09 [-.23, .05]	–				
4. Goal ambivalence	2.91 (1.36)	-.44 [-.55, -.32]	-.42 [-.53, -.30]	.29 [.15, .42]	–			
5. Life satisfaction	5.14 (1.18)	.22 [.08, .35]	.23 [.09, .36]	-.13 [-.27, .01]	-.41 [-.52, -.28]	–		
6. Affect	5.23 (1.07)	.26 [.12, .39]	.26 [.12, .39]	-.17 [-.31, -.03]	-.43 [-.54, -.31]	.49 [.37, .60]	–	
7. Locomotion	4.05 (0.60)	.09 [-.05, .23]	.23 [.09, .36]	.02 [-.12, .16]	-.27 [-.40, -.13]	.35 [.22, .47]	.19 [.05, .32]	–
8. Assessment	3.81 (0.70)	-.20 [-.33, -.06]	-.07 [-.21, .07]	.20 [.06, .33]	.19 [.05, .32]	-.25 [-.38, -.11]	-.25 [-.38, -.11]	-.10 [-.24, .04]

Note. Pearson correlations with 95% confidence intervals are shown.

Mediation analyses. The analytic procedures for testing the mediation hypothesis were the same as in Study 1, with the exception that locomotion and assessment were included as covariates. Table 4 presents the results of the analyses both with and without the covariates.

Consistent with the results of Study 1, we found non-zero indirect effects of self-concordance, autonomous, and controlled motivation on life satisfaction and affect through goal ambivalence. The indirect effects in the models without covariates, which can be directly compared with those of Study 1, were not only similar (or larger) in size in the present sample, but also estimated with higher precision throughout. When comparing the results of the analyses with and without covariates, coefficients appear somewhat smaller in the models controlling for locomotion and assessment, attesting to some shared variance with the study variables; however, including the covariates did not affect the overall pattern of results.

From the results of Study 2, we conclude that our findings are robust across two independent samples, and that the hypothesized model explains variance in the focal variables over and above the effects of inter-individual differences in self-regulatory strategies.

Table 4

Results of mediation analyses in Study 2: Simple mediation of the effects of goal self-concordance, autonomous motivation, and controlled motivation on life satisfaction and affect through goal ambivalence

	With covariates locomotion and assessment								Without covariates							
	Life satisfaction				Affect				Life satisfaction				Affect			
Effect	*β*	*B*	*SE (B)*	95% CI	*β*	*B*	*SE (B)*	95% CI	*β*	*B*	*SE (B)*	95% CI	*β*	*B*	*SE (B)*	95% CI
Self-concordance																
a	-.40	-0.17	0.03	[-0.22 -0.12]	-.40	-0.17	0.03	[-0.22 -0.12]	-.44	-0.19	0.03	[-0.24, -0.13]	-.44	-0.19	0.03	[-0.24, -0.13]
b	-.29	-0.25	0.06	[-0.38, -0.13]	-.35	-0.27	0.06	[-0.39, -0.16]	-.39	-0.33	0.06	[-0.46, -0.21]	-.39	-0.30	0.06	[-0.42, -0.19]
c	.15	0.06	0.03	[0.01, 0.10]	.21	0.07	0.02	[0.02, 0.12]	.22	0.08	0.03	[0.03, 0.13]	.26	0.09	0.02	[0.04, 0.13]
c'	.03	0.01	0.03	[-0.04, 0.06]	.07	0.02	0.02	[-0.02, 0.07]	.05	0.02	0.03	[-0.04, 0.07]	.09	0.03	0.02	[-0.02, 0.08]
a*b (indirect effect)		0.04	0.01	[0.02, 0.07]		0.05	0.01	[0.03, 0.07]	.17	0.06	0.01	[0.04, 0.09]	.17	0.06	0.01	[0.03, 0.09]
κ^2										.16 [.10, .23]				.16 [.09, .23]		
R^2			.25				.22				.17				.19	
Autonomous motivation																
a	-.37	-0.68	0.12	[-0.92, -0.44]	-.37	-0.68	0.12	[-0.92, -0.44]	-.42	-0.77	0.12	[-1.01, -0.53]	-.42	-0.77	0.12	[-1.01, -0.53]
b	-.29	-0.25	0.06	[-0.38, -0.13]	-.34	-0.27	0.06	[-0.38, -0.15]	-.38	-0.33	0.06	[-0.45, -0.20]	-.39	-0.30	0.06	[-0.42, -0.19]
c	.15	0.24	0.11	[0.03, 0.45]	.22	0.32	0.10	[0.12, 0.52]	.23	0.37	0.11	[0.15, 0.59]	.26	0.38	0.10	[0.18, 0.58]
c'	.04	0.07	0.11	[-0.15, 0.29]	.10	0.14	0.10	[-0.07, 0.34]	.08	0.12	0.12	[-0.11, 0.35]	.10	0.15	0.11	[-0.06, 0.35]
a*b (indirect effect)		0.17	0.06	[0.08, 0.32]		0.18	0.06	[0.09, 0.32]	.16	0.25	0.07	[0.14, 0.42]	.16	0.23	0.06	[0.13, 0.38]
κ^2										.15 [.08, .23]				.15 [.09, .24]		
R^2			.26				.22				.17				.19	
Controlled motivation																
a	.27	0.27	0.07	[0.14, 0.41]	.27	0.27	0.07	[0.14, 0.41]	.29	0.29	0.07	[0.15, 0.43]	.29	0.29	0.07	[0.15, 0.43]
b	-.31	-0.26	0.06	[-0.38, -0.15]	-.37	-0.29	0.06	[-0.40, -0.18]	-.41	-0.35	0.06	[-0.47, -0.23]	-.42	-0.33	0.05	[-0.43, -0.22]
c	-.09	-0.08	0.06	[-0.19, 0.04]	-.13	-0.10	0.06	[-0.21, 0.01]	-.13	-0.11	0.06	[-0.23, 0.02]	-.17	-0.13	0.06	[-0.24, -0.02]
c'	-.01	-0.01	0.06	[-0.12, 0.11]	-.03	-0.03	0.06	[-0.13, 0.08]	-.01	-0.01	0.06	[-0.13, 0.11]	-.05	-0.04	0.05	[-0.15, 0.07]
a*b (indirect effect)		-0.07	0.02	[-0.13, -0.04]		-0.08	0.03	[-0.14, -0.03]	-.12	-0.10	0.03	[-0.17, -0.05]	-.12	-0.09	0.03	[-0.16, -0.04]
κ^2										.12 [.07, .19]				.12 [.06, .20]		
R^2			.25				.22				.17				.19	

Note. *β* = standardized coefficient. *B* = unstandardized coefficient. a = effect of predictor on mediator. b = effect of mediator on outcome, controlling for predictor. c = total effect of predictor on outcome. c' = direct effect of predictor on outcome, controlling for mediator. a*b = product of the a and b paths. R^2= variance explained in the outcome by predictor and mediator. κ^2 = standardized effect size of the indirect effect, proportion of the maximum possible indirect effect (Preacher & Kelley, 2011). Standardized indirect effect sizes are not estimated for models with covariates. Standard errors and 95% confidence intervals for the indirect effects and κ^2s are bias-corrected bootstrapped estimates obtained with the PROCESS procedure for IBM®SPSS® (Hayes, 2013) using 1,000 bootstrap samples.

Study 3

In Study 3, we aimed to extend the results of Studies 1 and 2 by testing two key assumptions of the self-concordance model. First, an integral characteristic of the model is that self-concordance not only predicts cross-sectional differences, but also longitudinal *increases* in well-being. Second, these effects have been shown to occur through goal progress or attainment (Sheldon, 2002). We therefore tested a longitudinal process model, in which self-concordance of the study goal, measured at the *beginning of the freshman year*, would be associated with lower levels of ambivalence *during the academic year*, leading to higher ratings of goal progress at the *end of the academic year,* which would then predict one-year *increases* in well-being at the *beginning of the second year* (see Figure 1). In addition to life satisfaction and affect, we added satisfaction with studies as a further outcome variable in order to demonstrate that our hypotheses apply to global as well as more goal-specific indicators of adjustment.

Method

Participants and procedure. Study 3 was part of a larger research project consisting of a longitudinal study with 207 freshman students (145 women, M_{age} = 21.0 years, SD_{age} = 3.61, 72 psychology students) at a Swiss university over one and a half years, four semesters, and 12 measurement points (T_1-T_{12}). As we were interested in the adjustment to university in the first year, the present analyses are based on data from the first year of the survey and therefore focused on measurement points T_1 to T_8.[7]

The study was advertised via an email approved of, and delivered by, the legal department

[7] The present study included the measurement points T_1 and T_2 (at the beginning and the end of the [first] fall semester [lecture period]), T_3 (in the first semester break), T_4-T_6 (at the beginning, in the middle, and at the end of the spring semester), T_7 (in the second semester break), and T_8 (at the beginning of the following fall [third] semester). From T_1 to T_8, the dropout rate was 21% (N = 44), whereof N = 29 participants (66%) had left the university between T_1 and T_8 and therefore were excluded from the study. N = 147 participants (71%) completed all eight measurement points.

of the university. Students were further recruited via announcements during lectures, flyers, and advertising on billboards, and were emailed a coupon (worth 30 Euros for the first and 10 Euros for each subsequent measurement point) of a popular mail-order company in compensation for their participation.

Measures. In this study, the focal goal was defined as "the successful continuation or pursuit of your field of study". *Goal self-concordance* was measured at T_1 with the same four items as in Studies 1 and 2, rated on a 9-point Likert-type scale anchored at 1 = *does not apply at all* and 9 = *applies very much,* which were combined into the overall index (a = .55) and its subcomponents autonomous (r = .44, 95% CI [.32, .54]) and controlled (r = .64, [.55, .71]) motivation.

Goal ambivalence was also assessed with the same scale as in studies 1 and 2. Concurring with previous research (e.g., Sheldon & Elliot, 1999), we aggregated the mediator across several measurements during the academic year. However, because measurement points were not equidistant, instead of averaging the ratings, we computed the *area under the curve (ground)* (AUCg) across six measurements of goal ambivalence taken during the first and second semester using a formula provided by Pruessner and colleagues (2003). This index can be interpreted as the weighted total extent of goal ambivalence experienced from the beginning of the first to the end of the second semester. Internal consistencies of the 8-item scale at each measurement point (T_1-T_6) ranged from a = .93 to a = .96; the reliability of the scale mean across the six measurement points was a = .93.

Goal progress was assessed at the end of the academic year (T_6) with one item ("I am satisfied with the progress in pursuing my field of study.") rated on a 7-point Likert-type scale ranging from 1 = *does not apply at all* to 7 = *applies fully.*

Life satisfaction was assessed at the beginning of the first semester (T_1) and one year later at the beginning of the third semester (T_8) with the same measure as in Studies 1 and 2, rated on a 7-point Likert-type scale ranging from 1 = *not at all agree* to 7 = *precisely agree* (a_{T1} = .85, a_{T8} = .89). *Affect* was measured at T_1 and T_8 with 12 adjectives (e.g., happy, anxious), four of which were

taken from the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988), and eight from Brunstein (1993). Participants were instructed to rate how often they had experienced each of these feelings over the past two weeks on a 7-point Likert-type scale anchored at 1 = *never* and 7 = *frequently* (a_{T1} = .87, a_{T8} = .90).

Satisfaction with studies was measured at T_1 and T_8 with a scale developed by Hiemisch, Westermann, and Michael (2005). The scale comprises five statements (e.g., "I really take much pleasure in my studies.") that were rated on an 11-point Likert-type scale anchored at 0 = *does not apply at all* and 10 = *applies very much* (a_{T1} = .63, a_{T8} = .75).

Results and Discussion

Means (SDs) and zero-order correlations among the main constructs of the study are reported in Table 5.

Correlational results. As can be seen in Table 5, goal self-concordance (at T_1) was, at T_1 and T_8, positively related to all criterion variables (i.e., life satisfaction, satisfaction with studies, and affect), negatively associated with goal ambivalence over the first two academic semesters (AUCg T_1-T_6), and positively correlated with goal progress after one year (T_6), although the latter relationship was comparably small. As in Studies 1 and 2, the correlation between autonomous and controlled motivation was not statistically different from zero, but both were related to goal ambivalence. Again, simultaneously regressing the ambivalence measure on both subcomponents revealed non-redundant contributions of autonomous (β = -.42, *B(SE)* = -.15.39(2.50), 95% CI [-20.32, -10.46]) and controlled (β = .25, *B(SE)* = 4.57(1.23), [2.14, 7.00]) motivation.

Table 5

Means (SDs) and zero-order correlations among focal variables in Study 3

Variable	*M (SD)*	1	2	3	4	5	6	7	8	9	10
1. Goal self-concordance (T1)	9.60 (5.43)	–									
2. Autonomous Motivation (T1)	7.96 (1.20)	.52 [.41, .61]	–								
3. Controlled Motivation (T1)	3.15 (2.33)	-.90 [-.92, -.87]	-.09 [-.23, .04]	–							
4. Goal ambivalence (AUCg T1-T6)	83.34 (40.71)	-.42 [-.54, -.29]	-.43 [-.54, -.29]	.26 [.11, .40]	–						
5. Goal progress (T6)	3.37 (0.91)	.13 [-.02, .27]	.13 [-.02, .28]	-.08 [-.22, .07]	-.45 [-.57, -.32]	–					
6. Life satisfaction (T1)	5.30 (1.05)	.34 [.21, .46]	.25 [.12, .37]	-.27 [-.39, -.14]	-.32 [-.45, -.18]	.24 [.10, .38]	–				
7. Life satisfaction (T8)	5.39 (1.09)	.35 [.20, .48]	.23 [.08, .38]	-.28 [-.42, -.13]	-.40 [-.53, -.25]	.30 [.15, .45]	.71 [.62, .78]	–			
8. Satisfaction with studies (T1)	7.49 (1.48)	.40 [.28, .51]	.35 [.23, .47]	-.29 [-.41, -.16]	-.45 [-.56, -.32]	.21 [.07, .35]	.43 [.31, .53]	.36 [.21, .49]	–		
9. Satisfaction with studies (T8)	7.28 (1.64)	.28 [.12, .42]	.35 [.21, .48]	-.15 [-.30, -.01]	-.47 [-.59, -.33]	.34 [.19, .47]	.39 [.24, .51]	.46 [.33, .58]	.53 [.38, .59]	–	
10. Affect (T1)	5.00 (0.93)	.31 [.18, .43]	.19 [.06, .32]	-.26 [-.38, -.13]	-.46 [-.57, -.33]	.26 [.12, .40]	.56 [.45, .64]	.45 [.32, .57]	.49 [.25, .52]	.39 [.25, .52]	–
11. Affect (T8)	4.97 (1.00)	.19 [.04, .34]	.09 [-.07, .25]	-.17 [-.32, -.01]	-.27 [-.41, -.11]	.18 [.02, .33]	.38 [.24, .51]	.67 [.57, .75]	.17 [.01, .32]	.36 [.22, .49]	.52 [.39, .63]

Note. T in T1-T8 = time. AUCg = area-under-the-curve ground. Pairwise pearson correlations with 95% confidence intervals are shown.

Mediation analyses. We examined *serial multiple mediator models* (Hayes, 2013, p. 143) to test the hypothesis that (a) goal ambivalence (AUCg T_1-T_6) and goal progress (T_6) mediate the effect of goal self-concordance (T_1) on change in life satisfaction over the first year following university entry (ΔT_1-T_8) and (b) goal ambivalence over the first two semesters (AUCg T_1-T_6) mediates the relationship between goal self-concordance (T_1) and goal progress at the end of the second semester (T_6; cf. Figure 1A). Analogous models were tested for the criterion variables satisfaction with studies and affect (cf. Figures 1B and 1C). The effects in the mediation models were estimated with the bootstrap resampling method (Shrout & Bolger, 2002). A *change-regression model* (McArdle, 2009) was included in the models to estimate the respective base-free change in life satisfaction, satisfaction with studies, and affect from T_1 to T_8 (ΔT_1-T_8; cf. Figure 1). By adding fixed values (= 1) to the two regression paths predicting the criterion variables at T_8 (during model specification), the unobserved (i.e., latent) variable *latent change* was specified as the variance of the criterion variable at T_8 that is not identical to the criterion variable at T_1. Thus, the variable latent change represents the change in the criterion variable from T_1 to T_8 (McArdle, 2009; cf. Figure 1).

Testing for sample selectivity. As performing bootstrap analyses to estimate effects with the AMOS software package requires complete data, we evaluated (for all three criterion variables separately) whether the subsample with complete data on all study variables (N = 147, 100 women, M_{age} = 20.93 years, SD_{age} = 3.35, 44 psychology students) showed evidence of selectivity in comparison to the total sample (N = 207). For this purpose, the serial multiple mediator models depicted in Figure 1 were estimated with the dataset of (a) the total sample (*model 1*, N = 207, df = 1) using full information maximum likelihood (FIML)[8] and (b) the subsample with

[8] Full information maximum likelihood (FIML) was used to account for missing data (i.e., missing data points of some participants). FIML makes use of all available data, regardless of missing data pattern, to minimize any bias in the estimation of model parameters and is therefore equivalent to other missing data strategies (e.g., multiple imputation; Graham, Olchowski, & Gilreath, 2007).

complete data (*model 2*, $N = 147$, $df = 1$). To compare whether the parameter estimates (i.e., covariances and regression weights) in the two samples differed, the result of the total sample (model 1) was applied to the subsample with complete data. More specifically, the two covariances and seven regression weights of the resulting model 3 ($N = 147$, $df = 10$) were fixed to the estimates obtained in model 1. Lower AICs[9] (Akaike's Information Criterion; Akaike, 1987) for model 3 in comparison with model 2 (cf. Figure 1), for all three criterion variables (life satisfaction: AIC = 24.453; satisfaction with studies: AIC = 22.092; affect: AIC = 21.703), suggested that the parameter estimates fit the data well and thus did not differ between the total sample and the subsample with complete data. As there was no evidence of selectivity, analyses are subsequently reported merely for the subsample with complete data, the results of which arguably can be assumed to be representative of the total sample.

The serial multiple mediator models calculated for the subsample with complete data (model 2) had excellent indices of fit for all three criterion variables. Results and fit indices are provided in Figure 1 and Table 6.

Estimating indirect effects. As illustrated in Figures 1A and 1B and summarized in Table 6, goal self-concordance at the beginning of the first semester (T_1) indirectly predicted latent change in life satisfaction and satisfaction with studies over the first year (ΔT_1-T_8), mediated through goal ambivalence over the first two semesters (AUCg T_1-T_6) and goal progress at the end of the second semester (T_6) [total indirect effect: $a_1a_3b_2 + a_1b_1 + a_2b_2$]. Additionally, goal self-concordance had an indirect effect on goal progress through goal ambivalence [indirect effect: a_1a_3]. The effects of the criterion variables at T_1 on the latent change in the respective criterion variable over the first year (ΔT_1-T_8) mirror the law of initial values (e.g., Wilder, 1957).[10] As is

[9] The AIC (Akaike, 1987) as a goodness-of-fit index takes into account the complexity (or rather parsimony) of a model and therefore is used to compare models with a different number of degrees of freedom (Byrne, 2010).

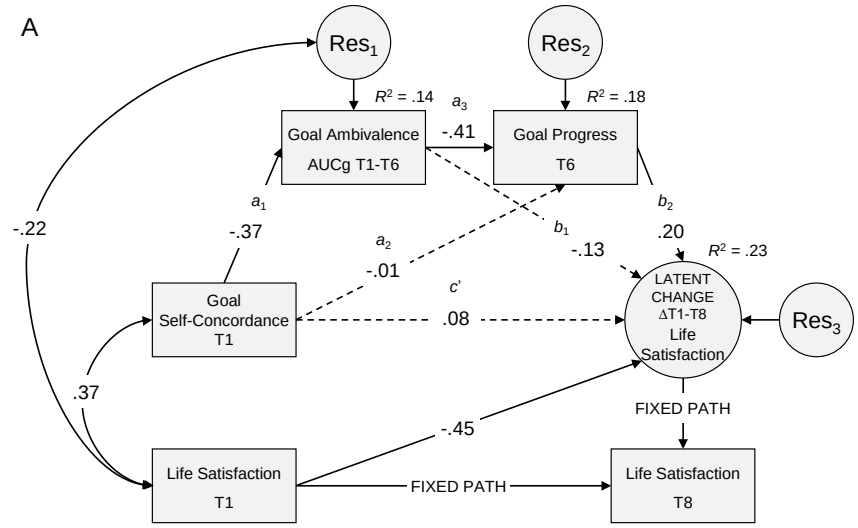
[10] The *law of initial values* (Wilder, 1957), regarding pre/post comparisons (i.e., two measurement points), describes the frequent observation of a negative association between the initial value of a variable at T_1 and change in this variable over time (T_1-T_2), coincides with the concept of *regression towards the mean* (e.g., Tweney, 2013), and therefore

evident from Figure 1C and Table 6, the path from goal progress to latent change in affect was very close to zero, and hence no indirect effect was found on this criterion.

Because the indirect effect of goal self-concordance (T_1) on the criterion variable (ΔT_1-T_8) via goal progress (T_6) [a_2b_2] contributes to the total indirect effect [$a_1a_3b_2 + a_1b_1 + a_2b_2$], but does *not* include goal ambivalence as a mediating variable, we also compared model 2 to a more parsimonious *model 4* ($df = 3$), in which the direct paths from goal self-concordance to goal progress (b_2) as well as the latent change in the criterion (c') were constrained to zero. This model, which is consistent with our assumption of goal ambivalence as the central mediator in the self-concordance model, fit the data even better (cf. AICs in Figure 1). The focal indirect effects through goal ambivalence ($a_1a_3b_2 + a_1b_1$) are provided in Table 6.

For all three criterion variables, we separately analyzed the (indirect) effects of goal self-concordance as well as its subcomponents autonomous and controlled motivation. Results of these analyses are summarized in Figure 2 and Table 7 for autonomous motivation and in Figure 3 and Table 8 for controlled motivation. With one exception, the pattern of results (i.e., indirect effects, fit indices, and model comparisons) was replicated for the two subcomponents of goal self-concordance for all three criterion variables. Specifically, the total indirect effect of autonomous motivation on the change in life satisfaction was close to zero.

promotes the notion of controlling for the initial value. In essence, the law of initial values describes the phenomenon that individuals who obtain a high value on a variable at T_1 more likely exhibit a lower score at T_2, whereas individuals who score low at T_1 more likely obtain a higher score at T_2.


A
Res1
Res2
R² = .14
a3
R² = .18
Goal Ambivalence
AUCg T1-T6
-.41
Goal Progress
T6
a1
b2
-.22
-.37
a2
b1
.20
R² = .23
-.13
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c'
LATENT
CHANGE
ΔT1-T8
Life
Satisfaction
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.08
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-.45
Life Satisfaction
T1
FIXED PATH
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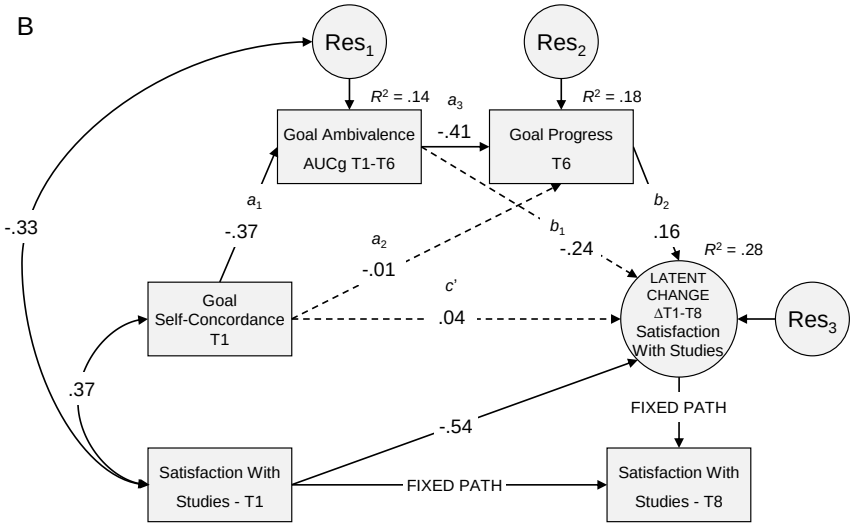
T8


B
Res1
Res2
R² = .14
a3
R² = .18
Goal Ambivalence
AUCg T1-T6
-.41
Goal Progress
T6
a1
b2
-.33
-.37
a2
b1
.16
R² = .28
-.24
-.01
c'
LATENT
CHANGE
ΔT1-T8
Satisfaction
With Studies
Res3
Goal
Self-Concordance
T1
.04
.37
FIXED PATH
-.54
Satisfaction With
Studies - T1
FIXED PATH
Satisfaction With
Studies - T8

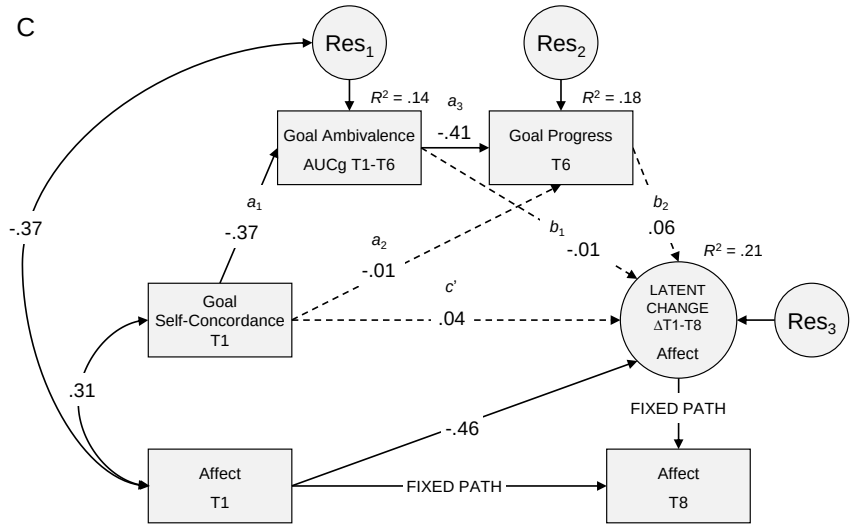

C
Res1
Res2
R² = .14
a3
R² = .18
Goal Ambivalence
AUCg T1-T6
-.41
Goal Progress
T6
a1
b2
-.37
-.37
a2
b1
.06
R² = .21
-.01
-.01
c'
LATENT
CHANGE
ΔT1-T8
Affect
Res3
Goal
Self-Concordance
T1
.04
.31
FIXED PATH
-.46
Affect
T1
FIXED PATH
Affect
T8

Figure 1. Serial multiple mediator models of goal self-concordance (predictor), goal ambivalence (mediator 1), goal progress (mediator 2), and latent change in the criterion variables (A) life satisfaction, (B) satisfaction with studies, and (C) affect.

Note. Squares indicate observed variables. A circle indicates a residual error in the prediction of an observed variable. Single-headed arrows represent regression paths. Double-headed arrows represent synchronous correlations. Above endogenous observed variables, R^2 indicates the total explained variance. Bold regression paths indicate that the bias-corrected 95% confidence interval of the path coefficient does not include zero, whereas the confidence interval of dotted regression path coefficients includes zero. Standardized bootstrap parameter estimates are shown. Indices of fit were excellent for models predicting (A) life satisfaction ($X^2_{(1)}$ = 0.250, X^2/df = .250, *NNFI* = 1.040, *CFI* = 1.000, *RMSEA* = .000, 95% CI [.000, .174], AIC = 38.250; AIC_{model4} = 35.333), (B) satisfaction with studies ($X^2_{(1)}$ = 0.845, X^2/df = .845, *NNFI* = 1.010, *CFI* = 1.000, *RMSEA* = .000 [.000, .212], AIC = 38.845; AIC_{model4} = 35.245), and (C) affect ($X^2_{(1)}$ = 0.909, X^2/df = .909, *NNFI* = 1.007, *CFI* = 1.000, *RMSEA* = .000 [.000, .215], AIC = 38.909; AIC_{model4} = 35.276). For life satisfaction (Figure 1A) and satisfaction with studies (Figure 1B), the relationship between goal self-concordance at the beginning of and latent change in the criterion variable over the first year at university was mediated by goal ambivalence and goal progress. No indirect effect was observed on the criterion variable affect (Figure 1C).

Table 6

Results of mediation analyses in Study 3: Serial multiple mediator models of goal ambivalence (mediator 1) and goal progress (mediator 2) accounting for the indirect effect of goal self-concordance on the latent change in (a) life satisfaction, (b) satisfaction with studies, and (c) affect

Effect	Estimate	*SE*	95% CI
(a) Life satisfaction			
c path (total effect, controlled for life satisfaction T_1)	.14	0.09	[-.026, .299]
a_1 path	-.37	0.08	[-.513, -.210]
a_2 path	-.01	0.08	[-.177, .139]
a_3 path	-.41	0.08	[-.569, -.241]
b_1 path	-.13	0.10	[-.326, .066]
b_2 path	.20	0.09	[.017, .376]
a_1a_3 (indirect effect)	.15	0.05	[.079, .270]
$a_1a_3b_2 + a_1b_1 + a_2b_2$ (total indirect effect)	.08	0.04	[.002, .170]
$a_1a_3b_2 + a_1b_1$ (focal indirect effect)[a]	.09	0.04	[.027, .183]
c ' path (direct effect)	.08	0.08	[-.087, .246]
covariate (life satisfaction at T_1 on the latent change in life satisfaction ΔT_1-T_8)	-.45	0.07	[-.578, -.315]
(b) Satisfaction with studies			
c path (total effect, controlled for satisfaction with studies T_1)	.11	0.09	[-.057, .277]
a_1 path	-.37	0.08	[-.513, -.210]
a_2 path	-.01	0.08	[-.177, .139]
a_3 path	-.41	0.08	[-.569, -.241]
b_1 path	-.24	0.11	[-.448, .010]
b_2 path	.16	0.07	[.013, .288]
a_1a_3 (indirect effect)	.15	0.05	[.079, .270]
$a_1a_3b_2 + a_1b_1 + a_2b_2$ (total indirect effect)	.11	0.05	[.030, .229]
$a_1a_3b_2 + a_1b_1$ (focal indirect effect)[a]	.12	0.05	[.039, .242]
c ' path (direct effect)	.04	0.08	[-.106, .207]
covariate (satisfaction with studies at T_1 on the latent change in satisfaction with studies ΔT_1-T_8)	-.54	0.08	[-.695, -.364]
(c) Affect			
c path (total effect, controlled for affect T_1)	.05	0.08	[-.099, .201]
a_1 path	-.37	0.08	[-.513, -.210]
a_2 path	-.01	0.08	[-.177, .139]
a_3 path	-.41	0.08	[-.569, -.241]
b_1 path	-.01	0.10	[-.189, .188]
b_2 path	.06	0.09	[-.110, .228]
a_1a_3 (indirect effect)	.15	0.05	[.079, .270]
$a_1a_3b_2 + a_1b_1 + a_2b_2$ (total indirect effect)	.01	0.04	[-.055, .089]
$a_1a_3b_2 + a_1b_1$ (focal indirect effect)[a]	.02	0.04	[-.041, .101]
c ' path (direct effect)	.04	0.08	[-.102, .212]
covariate (affect at T_1 on the latent change in affect ΔT_1-T_8)	-.46	0.08	[-.610, -.286]

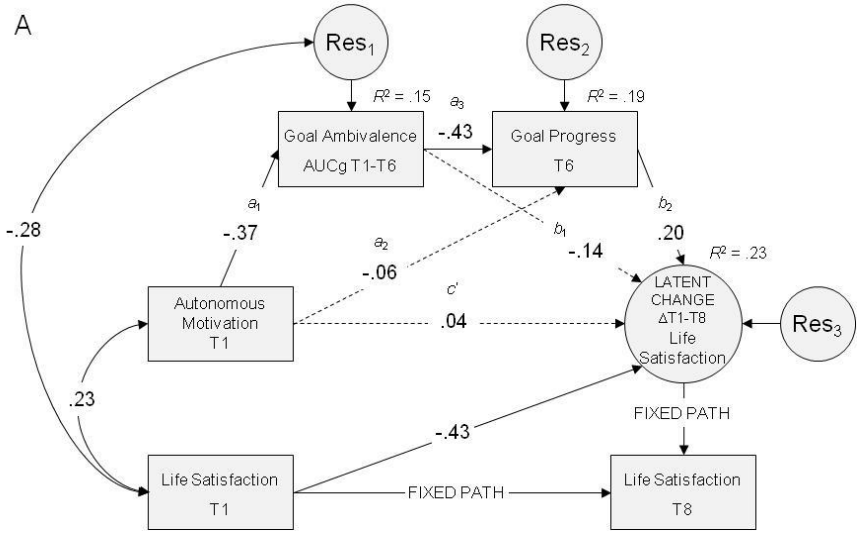
Note. CI = confidence interval. Standardized bootstrap estimates with bias-corrected 95% CI based on 1,000 bootstrap samples are shown.[a]estimate from model 4.

Table 7

Results of mediation analyses in Study 3: Serial multiple mediator models of goal ambivalence (mediator 1) and goal progress (mediator 2) accounting for the indirect effect of autonomous motivation on the latent change in (a) life satisfaction, (b) satisfaction with studies, and (c) affect

Effect		*SE*	95% CI
(a) Life satisfaction			
c path (total effect, controlled for life satisfaction life T_1)	.10	0.10	[-.062, .338]
a_1 path	-.37	0.09	[-.552, -.212]
a_2 path	-.06	0.10	[-.227, .149]
a_3 path	-.43	0.09	[-.595, -.240]
b_1 path	-.14	0.11	[-.326, .083]
b_2 path	.20	0.09	[.015, .375]
a_1a_3 (indirect effect)	.16	0.05	[.079, .295]
$a_1a_3b_2 + a_1b_1 + a_2b_2$ (total indirect effect)	.07	0.04	[-.007, .159]
$a_1a_3b_2 + a_1b_1$ (focal indirect effect)[a]	.09	0.04	[.026, .187]
c' path (direct effect)	.04	0.10	[-.115, .283]
covariate (life satisfaction at T_1 on the latent change in life satisfaction ΔT_1-T_8)	-.43	0.07	[-.565, -.290]
(b) Satisfaction with studies			
c path (total effect, controlled for satisfaction with studies T_1)	.23	0.09	[.070, .406]
a_1 path	-.37	0.09	[-.552, -.212]
a_2 path	-.06	0.10	[-.227, .149]
a_3 path	-.43	0.09	[-.595, -.240]
b_1 path	-.20	0.10	[-.392, .023]
b_2 path	.17	0.07	[.033, .296]
a_1a_3 (indirect effect)	.16	0.05	[.079, .295]
$a_1a_3b_2 + a_1b_1 + a_2b_2$ (total indirect effect)	.09	0.05	[.017, .201]
$a_1a_3b_2 + a_1b_1$ (focal indirect effect)[a]	.12	0.05	[.041, .246]
c' path (direct effect)	.18	0.08	[.027, .342]
covariate (satisfaction with studies at T_1 on the latent change in satisfaction with studies ΔT_1-T_8)	-.57	0.08	[-.722, -.392]
(c) Affect			
c path (total effect, controlled for affect T_1)	.05	0.08	[-.112, .216]
a_1 path	-.37	0.09	[-.552, -.212]
a_2 path	-.06	0.10	[-.227, .149]
a_3 path	-.43	0.09	[-.595, -.240]
b_1 path	.00	0.10	[-.197, .200]
b_2 path	.06	0.09	[-.116, .232]
a_1a_3 (indirect effect)	.16	0.05	[.079, .295]
$a_1a_3b_2 + a_1b_1 + a_2b_2$ (total indirect effect)	.01	0.04	[-.067, .079]
$a_1a_3b_2 + a_1b_1$ (focal indirect effect)[a]	.02	0.04	[-.045, .093]
c' path (direct effect)	.05	0.09	[-.120, .236]
covariate (affect at T_1 on the latent change in affect ΔT_1-T_8)	-.45	0.08	[-.590, -.279]

Note. CI = confidence interval. Standardized bootstrap estimates with bias-corrected 95% CI based on 1,000 bootstrap samples are shown.
[a]estimate from model 4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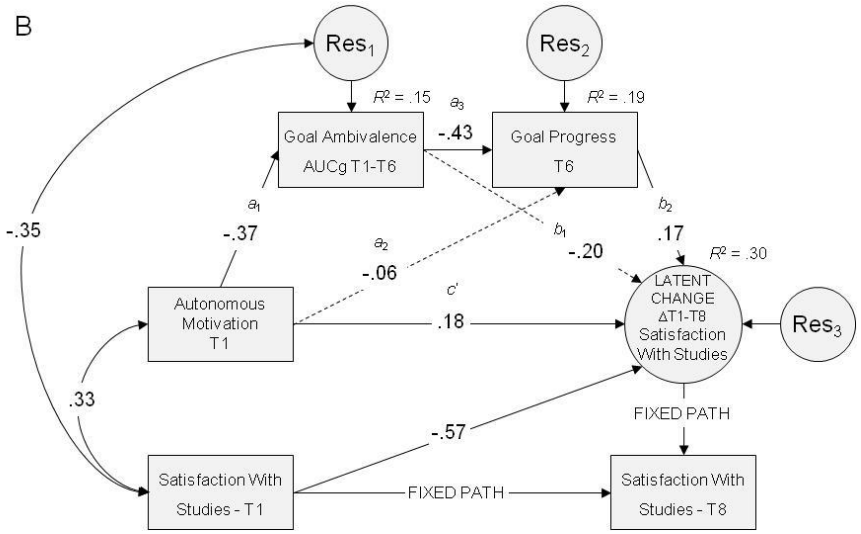
Res1
Res2
R² = .15
a3
R² = .19
Goal Ambivalence
AUCg T1-T6
-.43
Goal Progress
T6
a1
b2
b1
-.28
-.37
a2
.20
-.14
R² = .23
-.06
c'
LATENT
CHANGE
ΔT1-T8
Life
Satisfaction
Res3
Autonomous
Motivation
T1
.04
.23
FIXED PATH
-.43
Life Satisfaction
T1
FIXED PATH
Life Satisfaction
T8


B
Res1
Res2
R² = .15
a3
R² = .19
Goal Ambivalence
AUCg T1-T6
-.43
Goal Progress
T6
a1
b2
b1
-.35
-.37
a2
.17
-.20
R² = .30
-.06
c'
LATENT
CHANGE
ΔT1-T8
Satisfaction
With Studies
Res3
Autonomous
Motivation
T1
.18
.33
FIXED PATH
-.57
Satisfaction With
Studies - T1
FIXED PATH
Satisfaction With
Studies - T8

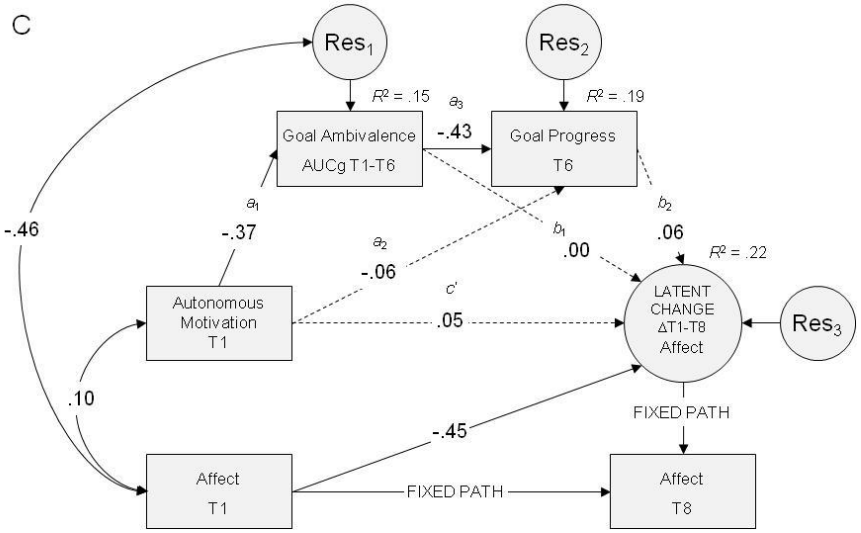
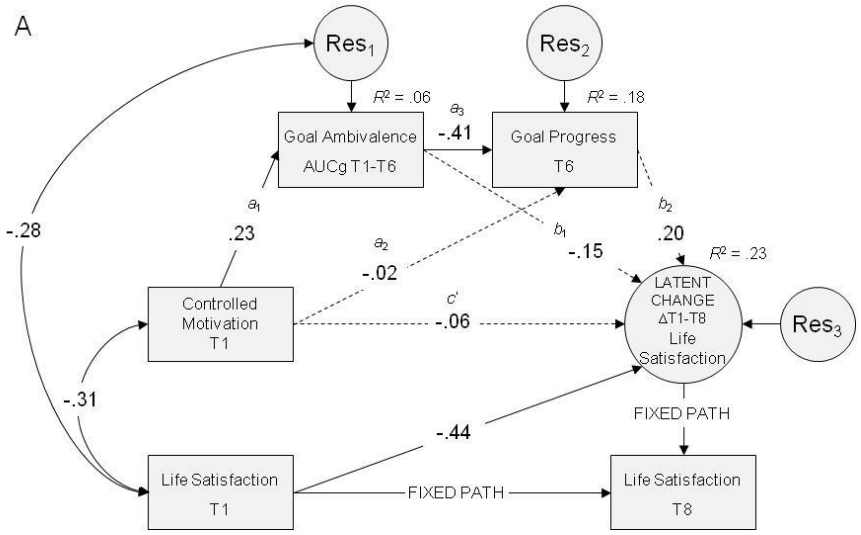

C
Res1
Res2
R² = .15
a3
R² = .19
Goal Ambivalence
AUCg T1-T6
-.43
Goal Progress
T6
a1
b2
b1
-.46
-.37
a2
.06
.00
R² = .22
-.06
c'
LATENT
CHANGE
ΔT1-T8
Affect
Res3
Autonomous
Motivation
T1
.05
.10
FIXED PATH
-.45
Affect
T1
FIXED PATH
Affect
T8

Figure 2. Serial multiple mediator models of autonomous motivation (predictor), goal ambivalence (mediator 1), goal progress (mediator 2), and latent change in the criterion variables (A) life satisfaction, (B) satisfaction with studies, and (C) affect.

Note. Squares indicate observed variables. A circle indicates a residual error in the prediction of an observed variable. Single-headed arrows represent regression paths. Double-headed arrows represent synchronous correlations. Above endogenous observed variables, R^2 indicates the total explained variance. Bold regression paths indicate that the bias-corrected 95% confidence interval of the path coefficient does not include zero, whereas the confidence interval of dotted regression path coefficients includes zero. Standardized bootstrap parameter estimates are shown. Indices of fit were excellent for models predicting (A) life satisfaction (*model 2:* $X^2_{(1)} = 0.269$, $X^2/df = .269$, *NNFI* = 1.041, *CFI* = 1.000, *RMSEA* = .000, 95% C.I. [.000, .176], AIC = 38.269 ; $AIC_{model3} = 24.207$; $AIC_{model4} = 35.220$), (B) satisfaction with studies (*model 2:* $X^2_{(1)} = 1.001$, $X^2/df = 1.001$, *NNFI* = 1.000, *CFI* = 1.000, *RMSEA* = .007 [.000, .219] AIC = 39.006; $AIC_{model3} = 22.652$; $AIC_{model4} = 40.937$), and (C) affect (*model 2:* $X^2_{(1)} = 0.721$, $X^2/df = .721$, *NNFI* = 1.023, *CFI* = 1.000, *RMSEA* = .000 [.000, .206], AIC = 38.721; $AIC_{model3} = 23.279$; $AIC_{model4} = 35.622$). For life satisfaction (Figure 2A) and satisfaction with studies (Figure 2B), the relationship between autonomous motivation at the beginning of and latent change in the criterion variable over the first year at university was mediated by goal ambivalence. No indirect effect was observed for the criterion variable affect (Figure 2C).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Res1
Res2
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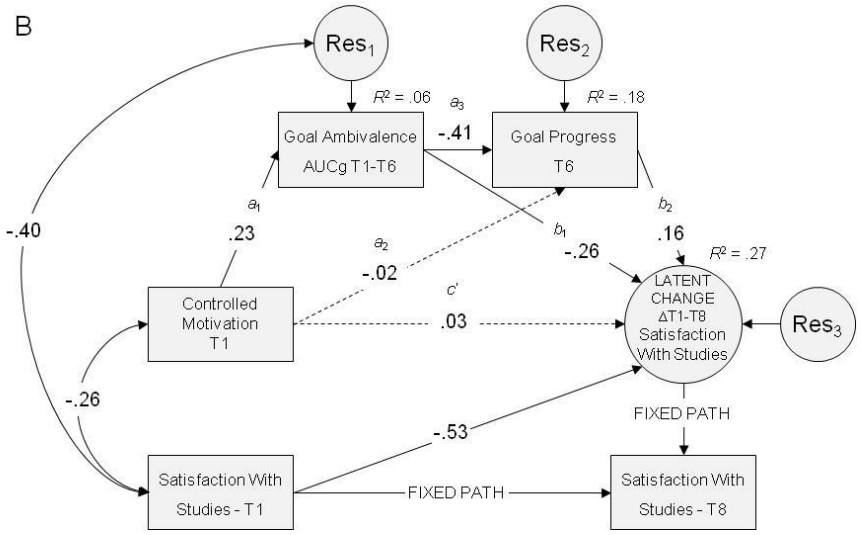
a3
-.41
R² = .18
Goal Ambivalence
AUCg T1-T6
Goal Progress
T6
a1
b2
b1
-.28
.23
a2
-.15
.20
R² = .23
-.02
LATENT
CHANGE
ΔT1-T8
Life
Satisfaction
Res3
Controlled
Motivation
T1
c'
-.06
-.31
FIXED PATH
-.44
Life Satisfaction
T1
FIXED PATH
Life Satisfaction
T8


B
Res1
Res2
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a3
-.41
R² = .18
Goal Ambivalence
AUCg T1-T6
Goal Progress
T6
a1
b2
b1
-.40
.23
a2
-.26
.16
R² = .27
-.02
LATENT
CHANGE
ΔT1-T8
Satisfaction
With Studies
Res3
Controlled
Motivation
T1
c'
.03
-.26
FIXED PATH
-.53
Satisfaction With
Studies - T1
FIXED PATH
Satisfaction With
Studies - T8

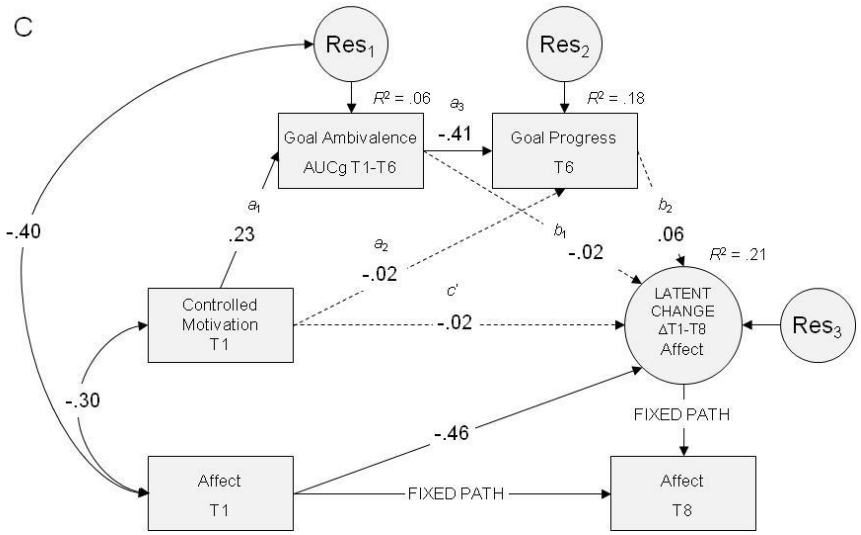
C
Res1
Res2
R² = .06
a3
-.41
R² = .18
Goal Ambivalence
AUCg T1-T6
Goal Progress
T6
a1
b2
b1
-.40
.23
a2
-.02
.06
-.02
R² = .21
LATENT
CHANGE
ΔT1-T8
Affect
Res3
Controlled
Motivation
T1
c'
-.02
-.30
FIXED PATH
-.46
Affect
T1
FIXED PATH
Affect
T8

Figure 3. Serial multiple mediator models of controlled motivation (predictor), goal ambivalence (mediator 1), goal progress (mediator 2), and latent change in the criterion variables (A) life satisfaction, (B) satisfaction with studies, and (C) affect.

Note. Squares indicate observed variables. A circle indicates a residual error in the prediction of an observed variable. Single-headed arrows represent regression paths. Double-headed arrows represent synchronous correlations. Above endogenous observed variables, R^2 indicates the total explained variance. Bold regression paths indicate that the bias-corrected 95% confidence interval of the path coefficient does not include zero, whereas the confidence interval of dotted regression path coefficients includes zero. Standardized bootstrap parameter estimates are shown. Indices of fit were excellent for models predicting (A) life satisfaction (*model 2:* $X^2_{(1)} = 0.168$, $X^2/df = .168$, *NNFI*= 1.049, *CFI*= 1.000, *RMSEA*= .000, 95% CI [.000, .164], AIC = 38.168 ; $AIC_{model3} = 25.116$; $AIC_{model4} = 34.795$), (B) satisfaction with studies (*model 2:* $X^2_{(1)} = 0.698$, $X^2/df = .698$,*NNFI* = 1.023*, CFI* = 1.000*, RMSEA* = .000 [.000, .205], AIC = 38.698; $AIC_{model3} = 21.911$; $AIC_{model4} = 34.861$), and (C) affect (*model 2:* $X^2_{(1)} = 0.814$*,* $X^2/df = .814$, *NNFI* = 1.016, *CFI* = 1.000, *RMSEA* = .000 [.000, .211], AIC = 38.814; $AIC_{model3} = 22.282$; $AIC_{model4} = 34.952$). For life satisfaction (Figure 3A) and satisfaction with studies (Figure 3B), the relationship between controlled motivation at the beginning of and latent change in the criterion variable over the first year at university was mediated by goal ambivalence. No indirect effect was observed for the criterion variable affect (Figure 3C).

Table 8

Results of mediation analyses in Study 3: Serial multiple mediator models of goal ambivalence (mediator 1) and goal progress (mediator 2) accounting for the indirect effect of controlled motivation on the latent change in (a) life satisfaction, (b) satisfaction with studies, and (c) affect

Effect		*SE*	95% CI
(a) Life satisfaction			
c path (total effect, controlled for life satisfaction T_1)	-.10	0.08	[-.237, .072]
a_1 path	.23	0.08	[.083, .389]
a_2 path	-.02	0.07	[-.140, .118]
a_3 path	-.41	0.08	[-.548, -.229]
b_1 path	-.15	0.10	[-.339, .046]
b_2 path	.20	0.09	[.022, .381]
a_1a_3 (indirect effect)	-.10	0.04	[-.193, -.034]
$a_1a_3b_2 + a_1b_1 + a_2b_2$ (total indirect effect)	-.06	0.03	[-.139, -.007]
$a_1a_3b_2 + a_1b_1$ (focal indirect effect)[a]	-.06	0.03	[-.135, -.014]
c' path (direct effect)	-.06	0.07	[-.196, .082]
covariate (life satisfaction at T_1 on the latent change in life satisfaction ΔT_1-T_8)	-.44	0.07	[-.569, -.299]
(b) Satisfaction with studies			
c path (total effect, controlled for satisfaction with studies T_1)	-.01	0.08	[-.160, .154]
a_1 path	.23	0.08	[.083, .389]
a_2 path	-.02	0.07	[-.140, .118]
a_3 path	-.41	0.08	[-.548, -.229]
b_1 path	-.26	0.11	[-.462, -.011]
b_2 path	.16	0.07	[.011, .287]
a_1a_3 (indirect effect)	-.10	0.04	[-.193, -.034]
$a_1a_3b_2 + a_1b_1 + a_2b_2$ (total indirect effect)	-.08	0.04	[-.186, -.019]
$a_1a_3b_2 + a_1b_1$ (focal indirect effect)[a]	-.08	0.04	[-.180, -.020]
c' path (direct effect)	.03	0.07	[-.123, .168]
covariate (satisfaction with studies at T_1 on the latent change in satisfaction with studies ΔT_1-T_8)	-.53	0.08	[-.676, -.359]
(c) Affect			
c path (total effect, controlled for affect T_1)	-.03	0.08	[-.188, .115]
a_1 path	.23	0.08	[.083, .389]
a_2 path	-.02	0.07	[-.140, .118]
a_3 path	-.41	0.08	[-.548, -.229]
b_1 path	-.02	0.10	[-.205, .166]
b_2 path	.06	0.09	[-.111, .225]
a_1a_3 (indirect effect)	-.10	0.04	[-.193, -.034]
$a_1a_3b_2 + a_1b_1 + a_2b_2$ (total indirect effect)	-.01	0.03	[-.075, .031]
$a_1a_3b_2 + a_1b_1$ (focal indirect effect)[a]	-.01	0.02	[-.075, .026]
c' path (direct effect)	-.02	0.08	[-.184, .116]
covariate (affect at T_1 on the latent change in affect ΔT_1-T_8)	-.46	0.08	[-.605, -.288]

Note. CI = confidence interval. Standardized bootstrap estimates with bias-corrected 95% CI based on 1,000 bootstrap samples are shown.
[a]estimate from model 4

In Study 3, goal progress at the end of the academic year did not contribute to a one-year increase in affect, precluding the hypothesized indirect effect of self-concordance through goal ambivalence and goal progress. Possibly, evaluations of short-term affect are malleable to influences of other personal strivings, e.g. social and relationship goals, that are more salient at the beginning of the academic year, thus lessening the effect of past study goal progress. In contrast, progress on this central personal goal did predict an increase in the more global well-being evaluation of life satisfaction, as well as satisfaction with studies. The fact that life and study satisfaction were strongly correlated (around $r = .45$) may also testify to the importance of successful pursuit of the study goal for overall well-being. Taken as a whole, the results of Study 3 provide compelling evidence for the mediating role of goal ambivalence in predicting well-being increases through self-concordant goal pursuit.

General Discussion

Across three studies, we found strong support for our hypothesis of goal ambivalence as a mediator of goal self-concordance effects on well-being. In all studies, self-concordance of university freshmen's study goal was negatively related to goal ambivalence. In Study 1, the cross-sectional effects of self-concordance on life satisfaction and affect were mediated through goal ambivalence. Study 2 replicated this result, finding it to remain robust beyond the effects of differences in self-regulatory strategies. In Study 3, we demonstrated that the well-established indirect effects of self-concordance on longitudinal changes in well-being and adjustment through goal progress were also accounted for by experienced ambivalence. In our view, these findings provide a valuable addition to previous research on the self-concordance model. By integrating a phenomenological correlate of perceived locus of causality that resonates with the self-determination literature, but to our knowledge has not been empirically investigated, the present research contributes to an even more fine-grained analysis of the processes that lead from self-concordant goal selection to successful attainment and increased well-being.

Ambivalence: Capturing a Relevant Experience in Personal Goal Pursuit

In the present article, we also present a new, reliable and valid measure of goal ambivalence. This scale better represents the notion of simultaneous conflicting reactions toward a goal during its pursuit than previous assessments focusing on expected unhappiness at attainment, yet it likewise predicted lower well-being. Beyond issues of measurement, we also extend previous research on the consequences of goal ambivalence by establishing goal self-concordance as an important predictor.

Notably, although self-concordance effects were fully explained through the experience of ambivalence, the correlation between the two constructs was far from perfect. Sheldon (2008) has described the relative autonomy index of self-concordance as a suitable self-report measure of a person's integration of her/his goals with other levels of personality. He did, however, acknowledge that it may not fully tap into incongruencies for all people, with some exhibiting "illusory self-concordance" (p. 473), falsely classifying their goals as more internalized than they really are. Even though these individuals may not be able to recognize its external locus of causality, they could still perceive a sense of incongruence and discomfort toward a given goal as captured by our ambivalence scale. Current in-the-moment feelings of ambivalence toward a goal may be easier to report on than relatively abstract evaluations of retrospective locus of causality, which could explain the incremental value of goal ambivalence in predicting well-being in the present studies.

In spite of these considerations, we contend that the two constructs are not conceptually equivalent and that goal ambivalence will also be determined by factors beyond the self-concordance framework. Other theories of motivational congruence may equally benefit from assessing conflicting reactions toward a goal. For instance, incongruence between implicit motivational dispositions and personal goals – which has in fact been directly linked to lower goal self-concordance (Sheldon & Schüler, 2011) – is assumed to be a "hidden stressor" (Baumann, Kaschel, & Kuhl, 2005, p. 781) that can be resolved through emotional disclosure (Schüler, Job,

Fröhlich, & Brandstätter, 2009). Distress about goal ambivalence is similarly reduced by expressive writing about emotions (Kelly et al., 2012), suggesting that the experience of goal ambivalence may be a – not so hidden – mechanism of motive-goal incongruence effects on ill-being. Different forms of person-goal incongruence, such as regulatory misfit (Higgins, 2005), may also precipitate goal ambivalence. In a similar vein, discrepancies between one's own and important others' appraisals of a personal goal could lead to feelings of ambivalence toward the goal, as demonstrated by Priester and Petty (2001) for attitude objects. In light of the strong associations with well-being measures in the present research, it seems desirable to examine potential antecedents of goal ambivalence and their interrelations.

Autonomous and Controlled Motivation: Independent but Converging Effects

In addition to proposing goal ambivalence as a relevant mediator in the self-concordance model, the present research addressed the question of interrelations and differential effects of self-concordance's subcomponents. As in previous research, we did not find substantial negative correlations between autonomous and controlled motivation. Both components incrementally contributed to the experience of goal ambivalence, supporting our assumption of an independent protective effect of autonomous motivation. Every goal, self-concordant or not, can entail negative aspects and undesired consequences, potentially contributing to the experience of ambivalence. However, the sense of ownership and integration with the self of autonomously pursued goals seems to prevent individuals from translating these negative aspects into the experience of conflict.

Both subcomponents also indirectly affected outcome measures through goal ambivalence. These findings are intriguing in that they further support the view that effects of autonomous and controlled motivation are non-redundant. On the other hand, separating them revealed no differential mediation effects and thus offered no incremental insight compared with the self-concordance index. In line with previous research, total effects of controlled motivation

(e.g., on affect in Study 1 and on goal progress in Study 3) were not statistically different from zero and somewhat smaller than those of self-concordance and autonomous motivation. However, all three predictors had non-zero indirect effects through ambivalence, hence suggesting that inconsistent self-concordance findings could be reconciled by including additional mechanisms.

Limitations

Some shortcomings of the present research may limit its generalization to other applications of the self-concordance model. First, our domain-specific analyses of a single goal, namely, the study goal, differ from the common practice in the self-concordance literature of aggregating evaluations across several personal goals. However, other research has also diverged from this practice, reasoning that ratings of self-concordance do not always coincide across different domains or goals (Carraro & Gaudreau, 2011). Second, we did not model the entire process of self-concordant goal pursuit on longitudinal changes in well-being through effort, attainment and basic need satisfaction, as proposed by Sheldon and Elliot (1999), although the design of Study 3 did map several of its core features. Future studies should extend our findings by including measures of self-regulation and basic need satisfaction, and perhaps more elaborate assessments of goal attainment (e.g., scaling techniques or objective indicators) than our one-item measure of goal progress. Finally, the average level of study goal self-concordance was relatively high in our samples, perhaps concurring with research that has found German undergraduates to experience higher levels of autonomous motivation compared to their American counterparts (Levesque, Zuehlke, Stanek, & Ryan, 2004). Underpinning the validity of our findings, self-concordance has been found to predict well-being across different cultures, despite intercultural mean differences (Sheldon et al., 2004). Nonetheless, these findings should be replicated with other samples and within different domains before general conclusions can be drawn.

Practical Implications

For the university freshmen in the present studies whose reasons for pursuing their field of study were less self-concordant, goal ambivalence was clearly a relevant experience. If this proves to be true in other contexts, explicitly addressing ambivalent reactions toward non-concordant goals may open up possibilities for intervention. Pertaining to efficient self-regulation, identification of potential conflicts is necessary to execute self-control (Myrseth & Fishbach, 2009). In cases of impaired action regulation, psychotherapeutic techniques such as motivational interviewing already rely on first activating and then resolving ambivalence, which has been assumed to enable integration of extrinsically motivated goals if delivered in an autonomy-supportive manner (Markland et al., 2005; Vansteenkiste & Sheldon, 2006). Acknowledging that non-concordant goals are accompanied by feelings of ambivalence could thus help individuals bring their endeavors into congruence with their genuine motivations, values, and interests, and to set more self-concordant goals in the first place.

Conclusion

Humans' desire for congruence within their self-concepts, attitudes, and actions lies at the heart of numerous psychological theories (e.g., theories of cognitive (in)consistency in social psychology, Gawronski & Strack, 2012; therapeutic approaches in clinical psychology, Grawe, 2004). Research from diverse theoretical backgrounds has asserted that the collision of conflicting motivational tendencies leads to discomfort and ill-being because it impairs the efficient regulation of behavior (Emmons, King, & Sheldon, 1993; Harmon-Jones, Amodio, & Harmon-Jones, 2009; Michalak, Heidenreich, & Hoyer, 2004). Previous work on both goal self-concordance as motivational congruence (Sheldon, 2008) and goal ambivalence as motivational conflict (Emmons & King, 1988) lies within this tradition.

Arguably, increasing congruence among theoretical approaches is imperative for the advancement of psychological science, and seems tantamount to the importance of individuals'

perceived consistency among their motivations and actions for successful striving and thriving. Avenues for future research depart from our findings regarding the role of goal ambivalence in the self-concordance model of goal striving, but also for its integration with other theories of personal goal pursuit, as well as for motivational accounts of conflict and consistency more generally. We believe that the present research sets the stage for further examination of goal ambivalence as a phenomenon that has been comparatively neglected by contemporary motivation science, but holds the potential to meaningfully contribute to the understanding of human goal pursuit.

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PART II

GOAL LOOMS DARKER:

GOAL AMBIVALENCE MODERATES THE EFFECT OF GOAL PROXIMITY ON GOAL COMMITMENT

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Abstract

This research extends previous work on the self-regulation of goal striving as well as effects of temporal and psychological distance on motivation. Borrowing from classic work on goal gradients and approach-avoidance conflicts, we predicted that the experience of ambivalence toward a personal goal moderates the extent to which feeling or being close to goal attainment affects goal commitment, such that greater proximity to the goal has a negative effect on goal commitment at higher levels of experienced goal ambivalence. We find evidence for the hypothesized effect across four studies examining different goals (pursuing a degree, running a half-marathon, founding a business) with varying operationalizations of goal proximity (self-reported, manipulated, temporal). These results validate that classic concepts of motivation science such as goal gradients and approach-avoidance conflict are both relevant and applicable to the everyday pursuit of self-set personal goals.

Introduction

The various achievements that we aspire to in life are rarely accomplished in the effortless blink of an eye. Striving to attain personal goals is a process that usually spans extended periods of time and requires prolonged exertion. Does this imply that goal-related motivation remains stable over the course of goal pursuit, or may it wax or wane as we get closer to a goal? And if so, at what point during this process are we most committed to our goals? Is our determination to follow through with the decision to pursue a certain endeavor greatest when we have just embarked on a course of action, or does the goal become more binding when it is close within reach? Answers to these questions are informed by various research approaches (for an overview, see Touré-Tillery & Fishbach, 2011). We add to this research by proposing that interindividual variability in subjective feelings of ambivalence toward a personal goal is an important determinant of the extent to which goal commitment changes as a function of proximity to the goal. Specifically, when a goal is appraised as relatively more ambivalent, proximity (vs. distance) to the goal should have a negative effect on goal commitment. Below, we detail our rationale for this prediction.

When Goals Loom Larger: Goal Gradients

Classic work on goal gradients constitutes the historical and conceptual starting point for our considerations. The term *goal gradient hypothesis* was first coined by Clark Hull (1932) to predict, among others, the phenomenon "that animals in traversing a maze will move at a progressively more rapid pace as the goal is approached" (p.42), hence describing an upward gradient of motivation with increasing proximity to the goal in time or space. Since its initial formulation, the basic effect that motivation increases closer to a goal has been replicated in numerous studies with both animals and human participants (e.g., Brown, 1948; Förster, Higgins, & Idson, 1998; Gjesme, 1974; Kivetz, Urminsky, & Zheng, 2006; Koo & Fishbach, 2012; Losco & Epstein, 1977; Miller, 1944). Originally explained in terms of habit and drive (Brown, 1948),

current accounts of the goal gradient effect capitalize on cognitive mechanisms such as the perceived marginal impact of goal-directed action (Förster et al., 1998; Koo & Fishbach, 2012; Touré-Tillery & Fishbach, 2011) or prospect theory's (Kahneman & Tversky, 1979) value function (Bonezzi, Brendl, & De Angelis, 2011; Heath, Larrick, & Wu, 1999).

Notably, distance to the goal does not have to be real for goal gradients to emerge. Psychological distance can instead be cognitively construed relative to a standard of reference. Such subjective perceptions of increasing proximity to a goal appear to hold analogous relevance to actual proximity. Studies have shown that goal gradients exist not only for objective, but also for illusionary goal progress, evidencing increased motivation as a function of goal progress even when this progress was externally endowed and did not affect the effort necessary to reach the goal (Kivetz et al., 2006; Nunes & Drèze, 2006). Similarly, research on temporal self-appraisal theory (Wilson & Ross, 2001) has found that the motivation to work toward a goal increases with subjective temporal proximity, i.e., when a desired end state is perceived as closer in time irrespective of objective temporal distance (Peetz, Wilson, & Strahan, 2009).

All of these more recent investigations assume that the value of goal attainment is unambiguously positive[11]. However, a recapitulation of research on goal gradients would remain starkly incomplete without mention of avoidance goal gradients. The early behaviorist rat experiments investigated not only approach behavior in response to learned rewards, but also avoidance behavior in response to anticipated punishment. A critical observation from these studies was the emergence of steeper avoidance than approach gradients. That is, the motivation to avoid a feared stimulus increased at a stronger rate with proximity to the stimulus than the motivation to approach a desired one (Brown, 1948; Miller, 1944). Thus, one may conclude from these findings that not only do *all* of "the motivational properties of the goal 'loom larger' as one

[11] For an exception, in which the value of the goal is shifted from attainment to pursuit, see Koo & Fishbach (2012), Study 3.

is closer to it" (Förster et al., 1998, p.117), but they do more strongly so when these properties instigate avoidance rather than approach reactions.

Particularly relevant to the current research question is the notion, explicated in Miller's (1944) conflict theory as well as Lewin's (1935, 1951) model of field forces, that circumstances may arise in which a goal takes on both positive and negative valence, leading to a conflict between approach and avoidance tendencies in the individual approaching the goal. For instance, Lewin (1951) described the example of a child trying to evacuate a toy swan from the ocean. As the child moves closer to the shore, the positive valence of obtaining the toy is counteracted by the negative valence of the threatening waves. Evident in this example, it follows directly from the premise of steeper avoidance than approach gradients that in a situation of approach-avoidance conflict, the net tendency to approach a goal becomes weaker closer to the goal. Conceptually speaking, this is precisely the hypothesis we aim to test with the present research.

When Goals Loom Darker: The Role of Goal Ambivalence

The construct of ambivalence toward a personal goal mirrors that of an approach-avoidance conflict (cf. Emmons & King, 1988). Not, however, in the literal sense of behavioral vacillation (Miller, 1944). We translate the notion of conflicting behavioral reactions toward a stimulus into one of *subjective appraisals of evaluative conflict* toward a personal goal. Attitude researchers have contended since the 1960s that ambivalence results from simultaneous positive and negative evaluations of an object (Jonas, Broemer, & Diehl, 2000). We have recently adapted this approach to the context of personal goals, providing a reliable and valid measure of experienced goal ambivalence, specifically, self-reported feelings of conflicting affective, cognitive, and conative reactions toward a goal (Koletzko, Herrmann, & Brandstätter, 2015). Importantly, this experience of mixed valence is a property that is not merely due to associations with objective positive or negative rewards, but subjectively ascribed to the goal and thus expected to vary between persons. For instance, the same goal of pursuing a psychology degree

could be perceived as both fulfilling and prestigious by some. For others, it may denote personal development on the one hand, but facing clichéd stereotypes and mediocre employment prospects on the other hand. The latter individuals, then, would experience mixed emotions, positive as well as negative thoughts, and feel torn about their goal. And according to our hypothesis, experience a decline in their motivation and hence their commitment to the goal as they approach it.

In view of this operational transition from behavioral to evaluative goal-related conflict, behaviorist explanations offered for differences between approach and avoidance goal gradients in terms of conditioning effects and drive strength (Brown, 1948) may not suffice to persuasively convince the reader of the expected effect's plausibility. However, at least three more recent approaches, based on prospect theory (Kahneman & Tversky, 1979), construal level theory (Trope & Liberman, 2010), and research on decisional regret (Pieters & Zeelenberg, 2007), provide theoretical and empirical arguments consistent with our expectations.

First, as mentioned above, Heath et al. (1999) applied the principles of prospect theory's value function to goal pursuit, namely, (a) the existence of reference points, (b) loss aversion, and (c) diminishing sensitivity with distance to the reference point, and demonstrated that they suffice to explain positive gradients in effort and persistence with increasing proximity to a goal in the case of positively valenced goals. Specifically, if a goal serves as a reference point, falling short of a goal represents a loss and exceeding the goal represents a gain; because individuals become more sensitive to losses and gains closer to the reference point, and losses are averse, the motivation to prevent losses, i.e., to attain the goal, increases as they get closer to it. These principles and particularly the theory's critical axiom that losses loom larger than gains (Kahneman & Tversky, 1979), readily apply to the prediction of a *negative* gradient of motivation for ambivalent goals. In the case of goal ambivalence, the goal is both positively and negatively valenced, so nearing the reference point of goal attainment is associated not only with potential gains, but also means entering into a region of potential negative outcomes (which may be

perceived as losses). Thus, the negative valence of the goal should increasingly predominate closer to the goal, negatively affecting motivation.

Second, construal level theory (Trope & Liberman, 2010) may serve to explain negative gradients for ambivalent goals. As far as psychological distance is concerned, this theory may currently be the most prominent research approach, and it has also generated findings relevant to changes in motivation over the course of goal striving. A central proposition of the theory contends that abstract, high-level aspects – i.e, those pertaining to the desirability of a goal – predominate for events in the distant future, whereas concrete, low-level aspects – i.e, those pertaining to the feasibility of a goal – prevail for near-future events (Liberman & Förster, 2008). Thus, if the overall valence of a goal derives predominantly from high-level aspects, it should be perceived as more attractive from a distance than if its valence stems mostly from low-level aspects. For example, if a psychology degree is pursued for its self-enhancing potential, the attractiveness of the goal increases over distance. If, on the other hand, it is pursued because it seems easier to obtain than, say, an engineering degree, the attractiveness of the goal is discounted over distance. However, the situation becomes more complex when negative as well as positive valence is involved. According to construal level theory, arguments in favor of a behavior (pros) are of higher construal and should therefore be relatively more salient at higher distance than arguments against a behavior (cons; Eyal, Liberman, Trope, & Walther, 2004). This is the case because a planned course of action is generally only pursued if its net valence is positive in the first place. Therefore, the existence of pros is a prerequisite for the presence of cons, but not vice versa, rendering cons subordinate to pros. Experimental research has confirmed that both the ratio of generated pros to cons and their relative ease of retrieval is increased with temporal distance and in turn explains more favorable evaluations of actions in the distant vs. near future (Eyal et al., 2004; Gilovich, Kerr, & Medvec, 1993; Herzog, Hansen, & Wänke, 2007). Thus, so long as pros do not directly equate to lower-level, and cons to higher-level aspects of the goal, avoidance gradients are expected to be steeper than approach gradients

from a construal level perspective (Liberman & Förster, 2008). This substantiates from a social cognition point of view our prediction that appraisals of ambivalent pursuits, which are characterized by the co-existence of both pros and cons regarding the goal, become less favorable with increasing proximity.

Finally, evidence backing our hypothesis comes from decision research on *pre-outcome regret* (Kirkebøen & Teigen, 2011). This term refers to the experience of regret over a decision during the period when the decision has been made, but potential consequences of the decision have not yet come into place. In our view, this period is analogous to the phase of goal pursuit, when a goal has been set, but not yet attained. Kirkebøen and Teigen (2011) argued that regret during this period is common and functional, because it may spark the consideration to reverse a suboptimal decision and disengage from a course of action. They further proposed that "such pre-outcome regret can be expected to be particularly strong in ambivalent situations, perhaps reaching a peak when the target event is drawing near." (p. 269), and in a series of studies indeed found empirical evidence for upward gradients of regret in the post-decision, pre-outcome period. A closer examination of the scenarios their participants were confronted with, for example, a decision to hold a wedding speech in front of a large audience (Experiment 1), or to help a friend renovate an apartment during exam preparations (vs. after the exam, Experiment 2), reveals that these may well be conceived of as ambivalent personal goals. Under the evident assumption that decisional regret represents an instance of lowered commitment to a course of action, these findings forecast the effect we predict in the present research, albeit without directly measuring the extent of ambivalence experienced toward the goal.

The Present Research

To recapitulate, we claim that subjective or objective proximity to a goal leads to a decline in goal commitment when goal ambivalence is experienced, resembling a negative net gradient of motivation in the presence of an approach-avoidance conflict. By introducing experienced goal

ambivalence as a determinant of changes in commitment to self-set personal goals, we contribute to previous research by (a) providing and testing a novel conceptualization of approach-avoidance conflict as subjective appraisals of evaluative conflict and (b) extending the scope of previous goal gradient research to the self-regulation of personal goal pursuit. We test our hypothesis in four studies across varying operationalizations of goal proximity (subjective and objective, temporal proximity and perceived progress), different personal goals (obtaining a degree, running a half-marathon, founding a business) and measures of goal commitment (intention certainty, determination).

We examine effects on goal commitment as a central indicator of motivation and self-regulatory linchpin (Bargh, Gollwitzer, & Oettingen, 2010). Individuals can generally be said to commit to a goal the moment they set it. In the literature, goal commitment is commonly defined as a sense of determination to follow through with the implementation of a given goal, and the unwillingness to lower or abandon it even in the face of adversity (Brunstein, 1993; Klein, Wesson, Hollenbeck, & Alge, 1999; Kruglanski et al., 2002; Oettingen, 2012). It has been associated with goal achievement and performance in numerous studies (Wofford, Goodwin, & Premack, 1992) and predicts attainment and well-being in personal goal pursuit (Brunstein, 1993). Comparable to goal commitment is the construct of intention strength in the theory of planned behavior (Ajzen, 1991), which is likewise a reliable predictor of goal-directed behavior, especially at high levels of intention *certainty* (Cooke & Sheeran, 2004; Sheeran & Abraham, 2003). In the present studies, we chose to focus on self-reported measures of intention certainty and determination as unambiguous operationalizations of goal commitment. Unlike rats moving toward or away from sources of pleasure and plain, behavioral observations of changes in effort, persistence, and even approach and avoidance (e.g., Förster & Friedman, 2013; Förster et al., 1998) in human goal pursuit do not necessarily reflect changes in motivation or strength of determination to reach the goal, but may instead represent self-regulatory strategies in goal pursuit (Carver & Scheier, 1998; Koo & Fishbach, 2008, 2012; Louro, Pieters, & Zeelenberg,

2007; Touré-Tillery & Fishbach, 2011). Therefore, we directly assess participants' subjective ratings of commitment to their goal intention.

In all four studies, we additionally consider the effects of goal value and expectancy. Motivation can be defined as a function of value and expectancy (Bargh, et al., 2010); accordingly, goal value and expectancy are central determinants of goal commitment (Klein et al., 1999; Kruglanski et al., 2002; Locke & Latham, 2002; Wofford et al., 1992). As such, initial levels of goal value and expectancy are potential confounding variables when predicting differences in goal commitment. The two components of motivation are also relevant to the study of goal gradients (Förster, Liberman, & Higgins, 2005; Liberman and Förster 2008) and further inherent in the abovementioned explanations for the goal gradient effect. The prospect theory-based account clearly depends on the value component (Heath et al., 1999), and high-level and low-level construal of goals in terms of desirability and feasibility concerns (Trope & Liberman, 2010) can likewise be related to goal value and expectancy. The inclusion of value and expectancy in studies of psychological distance and motivation thus seems warranted. While we do not reject the possibility that both low goal value and expectancy may feed into the experience of goal ambivalence, we aim to demonstrate that the effects of such goal-related conflict are unique and not fully redundant with the two basic components of motivation. We therefore deem it critical to ascertain that controlling for baseline levels of goal value and expectancy, as well as their interactions with goal proximity, does not eliminate the predicted effect of goal ambivalence.

Study 1

As an initial test of our hypothesis, we assessed undergraduate psychology students' ambivalence toward the goal of pursuing their degree as well as their subjective perceptions of proximity to this goal. We then probed for an interaction of the two variables in predicting goal commitment, as indicated by measures of (a) decisional regret as a proxy for intention certainty (cf. Kirkebøen & Teigen, 2011) and (b) determination.

Method

Participants and procedure. Seventy-seven undergraduate psychology students (M_{age} = 23.65 years, *SD* = 6.84; 13 male) of a Swiss university took part in a study on the "Assessment of one's studies". Participants completed a paper and pencil questionnaire during a lecture and were given the option to obtain extra course credit. Seventy-two students were in their first, and 5 in their second year of studies.[12]

Measures. *Goal ambivalence* referring to the goal of "pursuing a bachelors' degree in psychology" was assessed with an 8-item scale (Koletzko et al., 2015) reflecting conflicting reactions toward the goal (e.g., "When I think about my goal of pursuing a bachelors' degree in psychology, I feel conflicted" "- my thoughts are both positive and negative", "-I am torn "- my feelings contrast with my convictions"). The statements were rated on a 7-point Likert-type scale anchored at 1 = *not at all* and 7 = *completely* (*M* = 2.67, *SD* = 1.27). Cronbach's alpha for the scale was .93.

Subjective proximity to goal attainment was assessed with the question "Where do you see yourself with regard to the realization of your goal?", answers to which were given on a 7-point Likert-type scale anchored at 1 = *very far away* and 7 = *very close to the realization* (*M* = 4.61, *SD* = 1.46).

Decisional regret was assessed with the question „How much do you regret the decision to pursue the bachelors' degree in psychology?" rated on a 7-point Likert-type scale anchored at 1 = *not at all* and 7 = *very strongly* (*M* = 1.58, *SD* = 0.92). *Determination* was measured with a 4-item scale (Brunstein, 2001; cf. Brunstein, 1993) reflecting the strength of identification ("I fully identify with this goal") and unwillingness to abandon the goal ("No matter what happens, I will not give up this goal") as well as the readiness to initiate action ("I have the urgent feeling to immediately start working on this goal") and expend effort ("Even if it means a lot of effort, I

[12] Data from Studies 1 and 2 related to a different research question are reported in Koletzko et al. (2015).

will do everything necessary to accomplish this goal") toward goal attainment. Participants indicated how much they agreed to the statements of the 4-item scale on a 7-point Likert-type scale anchored at 1 = *not at all* and 7 = *fully* (*M*= 5.26, *SD* = 1.14, α = .84).

We assessed personal *goal value* ("How important is the realization of this goal to you?"; *M* = 6.32, *SD* = 0.92 on a 7-point scale) and *expectancy* ("How do you evaluate the realizability of this goal?"; *M* = 5.69*, SD* = 0.96 on a 7-point scale) as control variables at the outset of the questionnaire. Three participants did not provide ratings of these variables.[13]

Results

Preliminary analyses. Zero-order correlations among the focal study variables are shown in Table 1. As is evident from the table, subjective closeness to the goal was positively related to determination, negatively related to goal ambivalence, and unrelated to decisional regret. Goal ambivalence was substantially related to both outcome variables.

Table 1

Zero-order correlations among focal variables in Study 1

Variable	1	2	3	4	5
1. Goal ambivalence	–				
2. Goal proximity	-.28*	–			
3. Decisional regret	.54***	-.06	–		
4. Determination	-.35**	.40***	-.37**	–	
5. Goal value	-.42***	.22†	-.39**	.63***	–
6. Expectancy	-.36**	.53***	-.17	.16	.22†

Note. $^{\dagger}p < .05$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$. Pairwise correlations are shown (*N* = 74 to *N* = 77).

[13] The questionnaire also contained a manipulation of construal level (Freitas, Gollwitzer, & Trope, 2004) which did not affect any of the variables either directly or in interaction with goal ambivalence. Controlling for experimental condition did not affect the result of the focal analysis.

Test of hypothesis. The moderation hypothesis was tested with two OLS regression models in which decisional regret and determination were regressed on the standardized predictors goal ambivalence and goal proximity as well as their interaction term. The results of these analyses, shown in Table 2, revealed a statistically significant interaction effect on decisional regret, but not on determination. Figure 1 depicts the graphical interaction plot with predicted values of decisional regret at one standard deviation above and below the means of the predictor variables. Statistical inference for the estimated simple slopes was obtained with computational tools provided by Hayes (2013). At high levels (M + 1SD) of goal ambivalence, goal proximity was positively associated with decisional regret, $B(SE)$ = 0.32(0.13), 95% CI [0.07, 0.57], p = .014, whereas there was a negative but non-significant relation between the two variables at low levels (M - 1SD) of goal ambivalence, $B(SE)$ = -0.14(0.13), 95% CI [-0.39, 0.12], p = .281.

Table 2

Results of regressions predicting decisional regret and determination in Study 1

	Decisional regret				Determination			
Predictor	*B*	*SE(B)*	95% CI	*p*	*B*	*SE(B)*	95% CI	*p*
Goal ambivalence	0.56	0.09	[0.37, 0.74]	< .001	-0.30	0.12	[-0.55, -0.05]	.018
Goal proximity	0.09	0.09	[-0.09, 0.27]	.315	0.37	0.12	[0.12, 0.61]	.004
Interaction[a]	0.23	0.09	[0.05, 0.40]	.012	-0.02	0.12	[-0.25, 0.22]	.901
R^2 / ΔR^2			.36 / .06				.22 / .00	

Note. [a]Interaction between goal ambivance and goal proximity. CI = confidence interval. R^2 = outcome variance explained by the full model. ΔR^2 = variance explained in this model by the interaction term.

We then ran the models including control variables. Controlling for age, gender, goal value, and expectancy did not affect inference for the hypothesized effects. The interaction term predicting decisional regret remained statistically significant ($B(SE)$ = 0.25(0.09), 95% CI [0.07, 0.42], p = .007) and the interaction term predicting determination remained non-significant ($B(SE)$ = -0.02(0.10), 95% CI [-0.22, 0.18], p = .827). In a next step, we added the respective product terms of goal proximity with goal value and expectancy to the models. However, in these

models, none of the three interactions terms had a statistically significant effect on either decisional regret or determination. Testing the goal value and expectancy interaction effects separately – i.e., analogous to the goal ambivalence moderation analysis reported above – revealed a significant interaction effect of goal proximity with goal value (*B(SE)* = -0.25(0.10), 95% CI [-0.44, -0.06], p = .012) and a marginally significant interaction effect with expectancy (*B(SE)* = -0.15(0.08), 95% CI [-0.32, 0.02], p = .076) on decisional regret. Neither of the two variables interacted with goal proximity to predict determination.

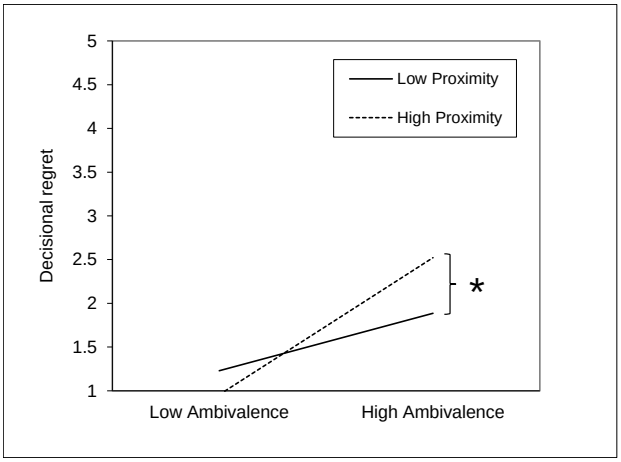

Figure 1. Simple slopes of the interaction between goal ambivalence and goal proximity predicting decisional regret in Study 1.

Note. *p < .05. High and low levels of the variables represent values one standard deviation above and below the respective means. The scale of the outcome variable ranged from 1 to 7 and was modified for the graphical display.

Ancillary analysis. Because we failed to find a direct interaction effect on determination, we further explored whether differences in goal ambivalence indirectly affected the relationship between goal proximity and goal determination through feelings of decisional regret. As a more proximal affective reaction, regret might precede and inform other goal evaluations (Kirkebøen & Teigen, 2011; van Harreveld, van der Pligt, & de Liver, 2009; Schwarz, 1990). Indeed, decisional regret and determination were negatively and substantially related in our dataset.

Therefore, we tested a *moderated mediation model* (Hayes, 2013) predicting an indirect effect of goal proximity on determination through decisional regret that is moderated by goal ambivalence. Results of this analysis indicated that goal proximity was indirectly negatively related to determination at high levels of goal ambivalence *B(SE)* = -0.09 (0.05), 95% CI [-0.22, -0.01], whereas it had no indirect effect on determination at low levels of goal ambivalence *B(SE)* = 0.04 (0.04), 95% CI [-0.01, 0.15].

Brief Discussion

The results of Study 1 provide partial support for our hypothesis. Goal ambivalence moderated the effect of goal proximity on decisional regret as predicted, but the effect on determination was only indirectly moderated by goal ambivalence through decisional regret. In addition, although the interaction effect on decisional regret remained robust when controlling for goal value and expectancy, we cannot conclude from the data that it explained incremental variance beyond the interactions of these variables with goal proximity.

A major limitation of Study 1 is the correlational nature of its design, prohibiting any interpretation of the causal relationship between goal proximity and goal commitment. Furthermore, whilst the evidenced negative relationship between goal ambivalence and goal proximity concurs with previous findings documenting people's tendency to psychologically distance themselves from potentially threatening events (Peetz et al., 2009; Ross & Wilson, 2002), it is less than ideal from a methodological point of view. In order to ensure orthogonality of the interacting predictors, we therefore conducted a second study in which subjective proximity to the goal was experimentally manipulated.

Study 2

We continued to focus on the academic context and the goal of pursuing an undergraduate psychology degree in Study 2. However, we varied the operationalization of goal

proximity by manipulating *subjective temporal proximity* to goal attainment. Future events may appear closer in time or more remote subjectively, irrespective of how far away they actually are. Research on temporal self-appraisal theory has shown that such subjective perceptions of temporal distance can be momentarily induced (Peetz et al., 2009; Pennington & Roese, 2003; Wilson, Buehler, Lawford, Schmidt, & Yong, 2012; Wilson & Ross, 2001). Instead of asking first-year students how close they felt to the attainment of the degree goal, we thus prompted them to mentally construe the date of graduation as relatively imminent vs. remote. A measure of intention certainty served as the operationalization of goal commitment in this study.

Method

Sample and procedure. As in Study 1, participants were recruited in an undergraduate psychology lecture, filled out a paper and pencil questionnaire in exchange for extra course credit, and were subsequently debriefed. The two experimental conditions (*close to the goal* vs. *distant from the goal*) were assigned through random distribution of the two questionnaire versions. The questionnaire was completed by 189 students. However, a number of participants indicated that they planned to obtain their degree earlier or later than the designated date. In order to hold constant objective temporal proximity to the goal, these participants were excluded from the analyses, yielding a final sample size of $N = 131$ ($M_{age} = 22.83$ years, $SD = 7.44$; 17 male). This resulted in a slightly uneven distribution of participants among the two conditions (63 in close group vs. 68 in distant group).

Measures. *Goal ambivalence* was assessed with the same scale as in Study 1 ($M = 2.82$, $SD = 1.33$, $\alpha = .93$).

The *subjective goal proximity manipulation* comprised a timeline procedure (Peetz et al., 2009; Wilson et al., 2012) in which individuals are presented with a visual timeline that spans either a relatively long or relatively short period from the present and thus are prompted to construe a specific event (in this case, graduation) as spatially – and thus, psychologically – relatively closer

or farther away from their current state. Participants read the following instruction in the close [distant] condition: "Above, you have indicated at what point in time you are planning to obtain your bachelors' degree in psychology. In order to be able to better visualize how close you already are to this point in time [how distant you still are from this point in time], please mark the date on the following timeline." They were then shown a timeline which ranged from "Today" in both conditions to either "December 2025" (close condition) or "December 2015" (distant condition). Thus, participants were presented with an anchor that reached either 12.5 or 2.5 years into the future, inducing them to perceive the actual 2 years-into-the-future graduation date as relatively closer to or farther away from "Today".

Intention certainty was assessed with a two-item measure. The first item ("Would you decide to pursue the psychology degree again?") reflected decisional certainty, and the second item ("Would you recommend the pursuit of the psychology degree to others?") reflected public endorsement of the goal (cf. Cialdini & Goldstein, 2004; Locke & Latham, 2002; Novacek & Lazarus, 1990). Answers were given on 7-point Likert-type scales anchored at 1 = *certainly not* and 7 = *certainly yes* (M = 6.01, SD = 1.06). The two items were strongly correlated, r = .62.

The same measures of *goal value* (M = 6.46, SD = 0.72) and *expectancy* (M = 5.59, SD = 0.98) as in Study 1 were included in the questionnaire prior to the manipulation as baseline control variables.

Results

Preliminary analyses. We first ascertained that participants had indeed marked the date of goal attainment closer to "Today" in the close condition (M = 31.40 millimeters, SD = 18.00) than in the distant condition (M = 93.46 millimeters, SD = 27.29), $t(124) = 15.07$, $p < .001$. Participants in the close condition also reported feeling closer to the date on a measure of subjective temporal proximity (M = 4.67, SD = 1.48 vs. M = 5.40, SD = 1.56 on a 7-point scale), $t(129) = 2.74$, $p = .007$. There was no main effect of the manipulation on intention certainty (M =

6.04, *SD* = 1.16 vs. *M* = 5.99, *SD* = 0.97, $t(129) = 0.29$, $p = .771$[14]. There were also no statistically significant differences between the two groups on the pre-manipulation measures of goal ambivalence, goal value, and expectancy.

Table 3

Results of the regression predicting intention certainty in Study 2

Predictor	*B*	*SE(B)*	95% CI	*p*
Goal ambivalence	-0.24	0.11	[-0.46, -0.01]	.043
Goal proximity[a]	-0.51	0.16	[-0.37, 0.26]	.748
Interaction[b]	0.54	0.16	[0.22, 0.85]	.001
R^2 / ΔR^2			.29 / .06	

Note [a]0 = distant, 1 = close. [b]Interaction between goal ambivalence and experimental condition. CI = confidence interval. R^2 = outcome variance explained by the full model. ΔR^2 = variance explained in this model by the interaction term.

Test of hypothesis. Analyses performed to test the interaction hypothesis were analogous to Study 1. Results of the moderated regression analysis predicting intention certainty are shown in Table 3. Goal ambivalence was standardized, and experimental condition dummy-coded (0 = distant, 1 = close), before entering the predictors and their interaction into the model. As predicted, the interaction term had a significant effect on intention certainty. The interaction plot is shown in Figure 2. Simple slope analyses revealed that the manipulation of goal proximity (vs. distance) had a negative effect on intention certainty at high levels of goal ambivalence, *B(SE)* = -0.59(0.23), 95% CI [-1.03, -0.14], $p = .010$, and a positive effect on intention certainty at low levels of goal ambivalence, *B(SE)* = 0.49(0.22), 95% CI [0.04, 0.93], $p = .033$.

[14] Differences in degrees of freedom are due to five participants not providing clearly identifiable marks on the timeline.

Including age, gender, goal value and expectancy as control variables did not affect the coefficient of the interaction term, *B(SE)* = -0.48(0.17), 95% CI [-0.81, -0.15], p = .004. Adding the respective product terms of experimental condition with goal value and expectancy to the model likewise had a negligible effect on the focal interaction term, *B(SE)* = -0.48(0.20), 95% CI [-0.88, -0.08], p = .019, whilst neither of the two added interactions were statistically significant.

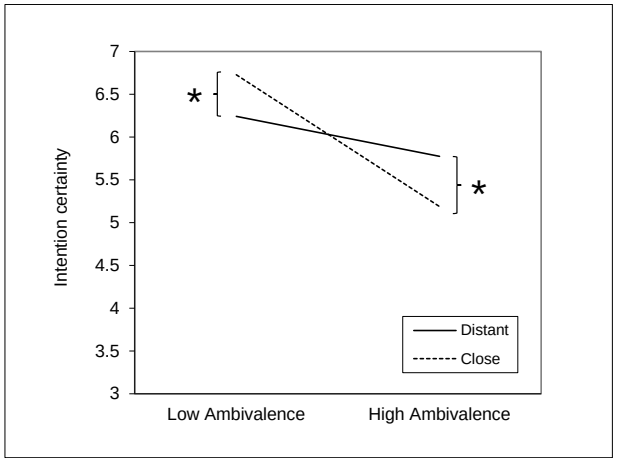

Figure 2. Simple slopes of the interaction between goal ambivalence and goal proximity predicting intention certainty in Study 2.

Note. *p < .05. High and low levels of goal ambivalence represent values one standard deviation above and below the respective means. The scale of the outcome variable ranged from 1 to 7 and was modified for the graphical display.

Brief Discussion

Even though the results of Study 1 were only partly consistent with our hypothesis, we replicated the predicted effect in Study 2 in a larger sample with an experimental induction of subjective temporal proximity and a different measure of goal commitment. In contrast to Study 1, we were also able to demonstrate that the effect of goal ambivalence was not redundant with potential effects of goal value or expectancy. With strengthened confidence in the hypothesized effect, we sought to test in Study 3 whether it also holds for changes in objective temporal

distance, i.e., whether individuals experiencing higher levels of ambivalence experience a decline in commitment as a goal comes closer in time. Although subjective appraisals of goal proximity have been shown to produce goal gradient effects analogous to objective proximity (Peetz et al., 2009), subjective and objective temporal distance can also differ in their implications with respect to other phenomena (Wilson et al., 2012). Therefore, we submitted our hypothesis to a stronger test by testing its generalizability across both subjective and objective temporal distance.

Study 3

In order to investigate effects of the passage of time, we again selected a context in which objective temporal distance to goal attainment was equal for all participants, but this time followed up on their goal commitment as they got closer to the goal in time. We chose to examine the hypothesized effect in a different domain in Study 3, focusing on athletic instead of academic endeavors. The sample recruited for this study comprised recreational athletes preparing for the goal of running a half-marathon. Participating in a long-distance race is a goal that requires several weeks of persistent and targeted preparation and hence a strong and steady commitment to following through with one's intention. Because the race was scheduled to take place on a specific date, proximity to this goal increased at the same rate for all participants. Therefore, even though they were not manipulated, as in Study 2 goal proximity and goal ambivalence can be assumed to be independent of each other. We again assessed intention certainty as an indicator of goal commitment.

Method

Sample and procedure. Runners who had signed up to participate in an annual Swiss half-marathon were recruited through the website and facebook page of the organizer of the race as well as through flyers in local stores of a major Swiss supermarket chain, one of the event sponsors. Interested athletes took part in an online study consisting of a baseline questionnaire,

three measurement points leading up to the day of the race, as well as one after the race. Participants were given the opportunity to participate in a lottery for a voucher worth 200 Swiss francs for a local running gear shop. For the purpose of the present research question, we focused on measures of goal ambivalence assessed in the baseline questionnaire approximately six to eight weeks before the date of the event (T_0), and repeated measures of intention certainty collected at the beginning of week four prior to the event (T_1) and the beginning of the week in which the (weekend) race was scheduled to take place (T_2). Specifically, we used the baseline measure of goal ambivalence at T_0 to predict changes in intention certainty between the two measurement points one month (T_1) and a few days (T_2) away from – i.e., relatively distant vs. close to – the goal. This procedure is thus conceptually equivalent to the moderation approach applied in Studies 1 and 2.

One hundred and fifty-two athletes completed the T_0 questionnaire. However, there was a significant attrition of participants, with only 95 completing the T_1 and 83 completing the T_2 questionnaire. Sixty-eight participants (M_{age} = 35.62, SD_{age} = 8.48; 30 male) provided data on all focal variables, constituting our final sample for the analyses.

Measures. *Goal ambivalence* at T_0 was measured with the same scale as in Studies 1 and 2, referring to participation in the half-marathon (M = 1.95, SD = 0.90, α = .86).

Intention certainty was measured at T_1 and T_2 with a two-item measure, with one item reflecting decisional certainty („How certain are you regarding your decision to participate in the half-marathon?") and the other item reflecting decisional regret („How much do you regret the decision to participate in the half-marathon?"). Answers were given on 7-point Likert type scales and reverse coded for the regret item (M_{T1} = 6.53, SD_{T1} = 0.81, r_{T1} = .57; M_{T2} = 6.60, SD_{T2} = 0.70, r_{T2} = .42).

Goal value (M = 5.76, SD = 1.09) and *expectancy* (M = 6.28, SD = 0.91) were assessed as baseline control variables at T_0 with the same items as in Studies 1 and 2.

Results

Preliminary analyses. Prior to the main analysis, we tested whether the 68 participants who had completed questionnaires at all three measurement points differed from the 84 participants who had dropped out after the baseline assessment on the variables measured at T_0. Individuals who continued to partake in the study indicated somewhat lower levels of goal ambivalence (M = 1.95, SD = 0.90) than those who did not (M = 2.32, SD = 1.39), $t(143) = 1.96$, $p = .052$. There were no statistically significant differences between the two groups regarding gender, age, goal value, or expectancy.

Next, we examined relations among the focal variables, which are exhibited in Table 4. The measures of intention certainty at T_1 and T_2 were moderately correlated. Paired t-tests revealed no overall change in intention certainty between the two measurement points, $t(67) = 0.62$, $p = .538$. Goal ambivalence at T_0 was substantially negatively associated with intention certainty at both T_1 and T_2. However, the size of these between-person correlations does not provide any indication as to whether goal ambivalence is related to *within-person changes* in intention certainty over time.

Table 4

Zero-order correlations among focal variables in Study 3

Variable	1	2	3	4
1. Goal ambivalence T_0	–			
2. Goal value T_0	-.31*	–		
3. Expectancy T_0	-.38**	.44***	–	
4. Intention certainty T_1	-.58***	.43***	.50***	–
5. Intention certainty T_2	-.40***	.25*	.21†	.33**

Note. $^{\dagger}p < .05$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$. Listwise correlations are shown (N = 68).

Test of hypothesis. In order to investigate whether baseline goal ambivalence predicted a within-person decline in intention certainty with increasing temporal proximity, we applied a *change-regression model* (McArdle, 2009). In this type of structural equation model, the difference

between two measurement points of a criterion measure (in the present case, intention certainty at T_2 and T_1) is modeled as a latent variable. The base-free latent change in the criterion is estimated by regressing the criterion score at the second measurement point on the criterion score at the first measurement point and the latent change score, with both regression coefficients restricted to equal 1, and regressing the latent change score on the criterion score at the first measurement point. To this setup, goal ambivalence at T_0 was added as a predictor of both intention certainty at T_1 and – of focal interest to the hypothesis test – the latent change in intention certainty from T_1 to T_2. Path coefficients were estimated with the bootstrap resampling method using 1000 bootstrap samples. Standardized regression weights are shown in Figure 3A. In line with our hypothesis, goal ambivalence at T_0 was associated with a negative change in intention certainty from T_1 to T_2, B = -.25, bootstrap SE = 0.10, bootstrap 95% bias-corrected percentile CI [-0.46, -0.07], p = .016, over and above the effect of differences in initial levels of intention certainty at T_1. No goodness-of-fit indices were obtained for this saturated model.

We ran a second model in which age, gender, goal value, and expectancy were added as additional predictors of intention certainty at T_1, as well as the latent change in intention certainty. The T_0 predictors were allowed to covary. Results of this analysis indicated that goal ambivalence prevailed as a significant predictor of the decline in intention certainty beyond any effects of the other variables, B = -.21, bootstrap SE = 0.09, bootstrap 95% bias-corrected percentile CI [-0.42, -0.05], p = .015, whereas baseline goal value and expectancy did not predict a change in the outcome variable.

Ancillary analysis. Due to the unexpectedly large percentage of participants who failed to complete all three questionnaires, and presumably restricted variance in goal ambivalence in the subsample with complete data (as indicated by the difference in ambivalence levels), the estimates we obtained in our analysis may be systematically biased. Therefore, we ran the same model in the sample of all athletes who had completed the questionnaire at T_0 (N = 152) using full information maximum likelihood estimation, which takes into account all available data and

thus minimizes bias due to excluding individuals with missing data (Graham, 2009). Figure 3B shows the standardized regression weight estimates resulting from this analysis. The estimate of the path coefficient predicting the latent change score from goal ambivalence remained substantial and statistically significant when considering the entire T_0 sample, B = -.29, SE = 0.09, p = .002. Likewise, controlling for age, gender, goal value, and expectancy, had only a minor effect on the coefficient in this dataset, B = -.22, SE = 0.10, p = .023.[15] Again, goal value and expectancy did not explain statistically significant amounts of variance in the outcome variable. Thus, taking into account all available data yielded comparable results to those obtained in the restricted sample. Although the total amount of variance in the latent change of intention certainty explained by the model was somewhat smaller in the extended dataset, the relative effects of goal ambivalence appeared larger, if anything.

Brief Discussion

The results of Study 3 speak in favor of the robustness and generalizability of the effects found in Studies 1 and 2. Between-person baseline differences in goal ambivalence predicted time-dependent within-person changes in intention certainty; the higher participants scored on the baseline measure of goal ambivalence, the stronger a decline they experienced in intention certainty between two subsequent time points relatively distant from vs. proximal to the goal. As in Study 2, this effect was incremental to and stronger than the combined effects of goal value and expectancy.

The substantial proportion of participants who dropped out of the study prior to completion did not seem to experience a strong commitment to filling out the later questionnaires. However, the apparent differences in goal ambivalence between the attrition and

[15] Bootstrapped estimates for analyses run on incomplete data are not available from the IBM® SPSS® Amos software package (version 20.0.0) used for the present analysis.

non-attrition groups, as well as the strong negative relationship between goal ambivalence and intention certainty, suggest that those who discontinued their participation in the study may have also decided to discontinue their preparation for the race, and to disengage from their goal of running the half-marathon. Previous research has found that goal-related conflict predicts increased cortisol excretion during a marathon (Brandstätter, Herrmann, & Schüler, 2013). Perhaps such symptoms of conflict-induced distress were experienced by ambivalent participants during the training period and eventually prevented them from persevering. Nevertheless, extending the analysis to include the entire sample arguably indicated that results of our model might have been similar had these participants proceeded to provide data at the later measurement points. In light of the confinements of the observational online study design, we attempted to replicate the predicted effect in a more controlled setting in Study 4 with yet another real-life personal goal and a manipulation of goal proximity that targeted perceptions of goal progress.

It should be kept in mind that in the context of personal goal pursuit, distance to a goal can assume different meanings. On the one hand, if the goal has a temporal component such that its attainment is linked to a certain point in time (e.g., running a race on a pre-scheduled date), moving forward in time equates to moving closer to the goal. On the other hand, moving closer toward a goal can also be signified by goal progress, i.e., successful goal-directed action (Brunstein, 1993; Carver & Scheier, 1998). In Study 1, we measured self-reported subjective proximity to goal realization, which could encompass both aspects (as the progression of the curriculum is set to a certain extent, but variance in both temporal perception and actual success in proceeding is possible). In Studies 2 and 3, research attention was dedicated to the effects of subjective and objective temporal proximity. In order to confirm that the predicted effect of goal ambivalence applies to both potential dimensions of distance, temporal proximity and goal progress, we thus focused on perceptions of success vs. failure at goal progress in Study 4.

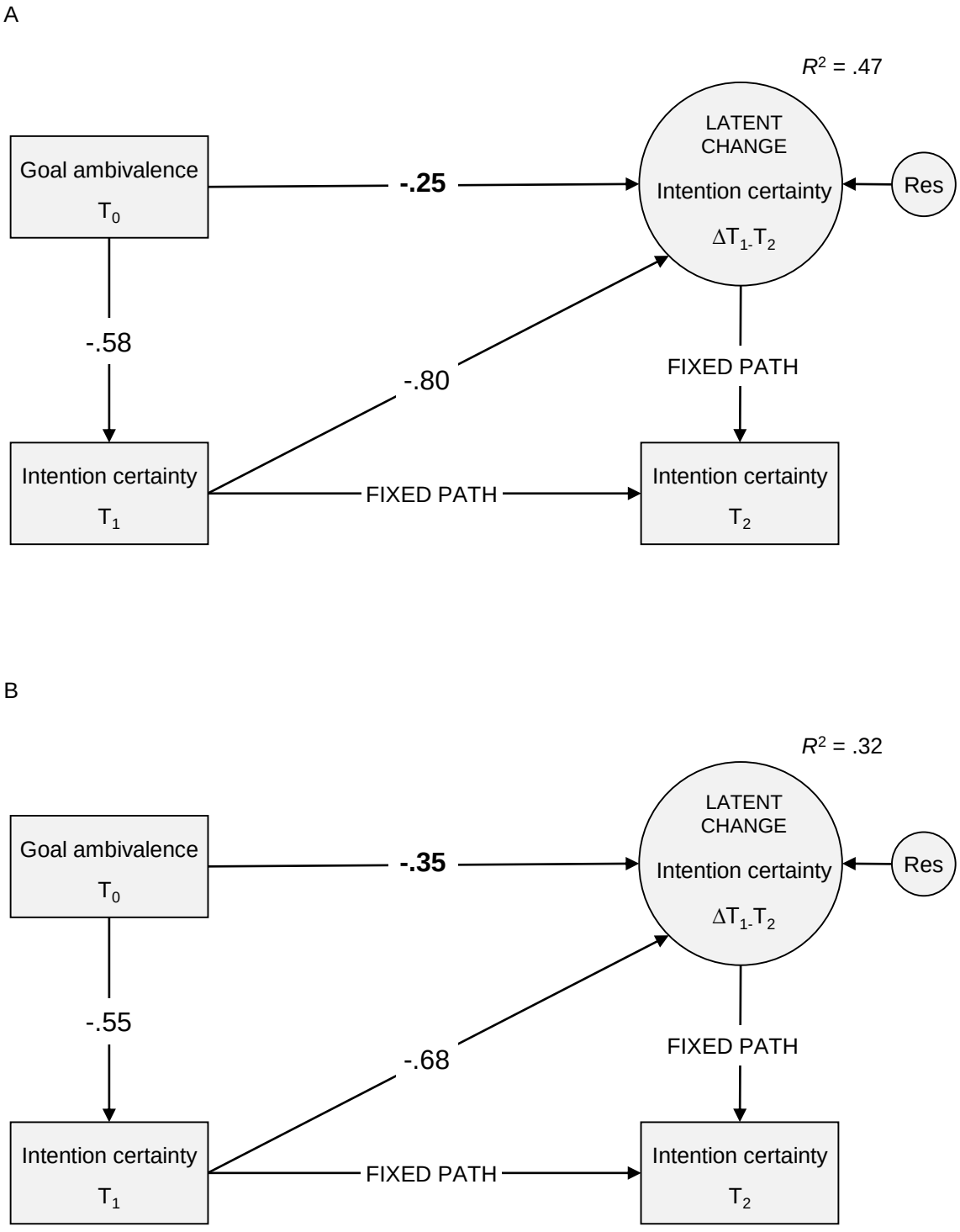

Figure 3. Path estimates of the change-regression model predicting the change in intention certainty from T_1 to T_2 in (A) the subsample with complete data, N = 68 and (B) the entire baseline sample, N = 152, in Study 3.

Note. Standardized regression weights are shown.

Study 4

The final study in our series was a laboratory experiment conducted in a sample of aspiring entrepreneurs in which we manipulated subjective proximity to goal attainment by means of a mental simulation. Similar to studying toward obtaining the requirements for a university degree, or training in preparation for a long-distance race, founding a business is an endeavor that calls for considerable investment of effort over an extended period of time, and for determination in the face of hindrance and unexpected barriers. It is a situation in which the uncertainty of both potential success and failure of the venture lingers, with many start-ups eventually not reaching their often ambitious goals (Hmieleski & Baron, 2009). To the entrepreneurs in our sample – who we assumed were familiar with this uncertainty – the goal was therefore rendered psychologically closer or more distant by letting them envision either successful or unsuccessful goal progress, as simply imagining an outcome increases the perceived likelihood of its occurrence, and in the case of goals, mental anticipation of attainment (Gilovich et al., 1993; Oettingen, 2012). Interaction effects between goal ambivalence and the experimental manipulation were tested on measures of intention certainty and determination.

Method

Sample and procedure. Participants were recruited in cooperation with entrepreneurship centers and startup counseling services, in business plan courses at Swiss universities, and via various entrepreneurship organizations. Interested individuals were included in the study if they indicated that they had set the goal to start a venture, i.e., were currently in the process of planning or implementing, but had not yet founded the business. Sixty-seven prospective entrepreneurs participated in the experiment. Two participants were excluded from the analyses because they did not provide data on all study variables, leaving a final sample of $N = 65$ ($M_{age} = 29.05$, $SD_{age} = 9.54$; 41 male)[16], 31 of which were randomly assigned to the *close* (i.e.,

[16] Of these participants, one did not indicate their age and three failed to indicate their gender.

simulation of successful goal progress) and 34 to the *distant* (i.e., simulation of failure at goal progress) condition, respectively.

Upon their arrival at the laboratory, participants provided informed consent and filled out a baseline paper and pencil questionnaire including the goal ambivalence scale and control variables. They were then seated at a computer and worked on a reaction-time filler task unrelated to the present research question. Subsequently, the manipulation instructions were presented on the computer screen, followed by an electronic questionnaire containing the dependent variables intention certainty and determination. Afterwards, participants were debriefed and received a voucher for a coffeehouse chain worth 10 Swiss francs as well as the option to sign up for a summary of the study results.

Measures. Due to potential heterogeneity in the definition of the goal, participants were initially asked to specify which incident or milestone would mark, for them personally, the attainment of their goal of founding a business. They also estimated at what point in the future they wanted to reach this milestone.

Goal ambivalence was measured with the same 8-item scale as in the previous studies, referring to the founding of one's own business ($M = 2.79$, $SD = 1.26$, $\alpha = .90$).

The *subjective goal proximity manipulation* consisted of a mental simulation exercise. Participants in the close [distant] condition read the following instruction: "The following exercise is about mentally putting yourself into a specific situation. It is important that you let your thoughts and phantasy flow freely. It does not matter whether you have ever experienced this particular or a similar situation. Simply try the best you can to envision the situation. What is the situation in question? In the first part of the questionnaire, you have specified which incident marks the founding of your business for you personally, and until what point in time you want attain this milestone. Now imagine that you have reached this point in time and have indeed founded your business [have not managed to found your business]. Imagine as concretely as

possible how you would experience this situation, which thoughts would pass your mind, and how you would feel in this situation. Close your eyes for a moment and try your best to visualize this situation." They were then given some time to take notes on their thoughts during the exercise.

Intention certainty was measured with the same 2-item measure as in Study 3 (M = 6.04, SD = 1.03, r = .53). *Determination* was measured with the same 4-item scale (Brunstein, 2001) as in Study 1 (M = 5.67, SD = 1.11, α = .82).

The pre-manipulation questionnaire also included baseline measures of *goal value* ("How important is it to you to found a business?"), rated on a 7-point Likert-type scale anchored at 1 = *not at all important* and 7 = *very important* (M = 5.52, SD = 1.31) and *expectancy* ("How confident are you that you can realize this goal?"), rated on a 7-point Likert-type scale anchored at 1 = *not at all confident* 7 = *very confident* (M = 5.65, SD = 1.37)

Results

Preliminary analyses. Participants indicated that they were able to imagine the simulated situation rather well overall (M = 5.34, SD = 1.40 on a 7-point scale). This was slightly more true for those in the close (M = 5.68, SD = 1.48) than those in the distant condition (M = 5.03, SD = 1.26), $t(63) = 1.91$, $p = .061$. However, there was no mean difference between participants in the close and distant groups on a measure of subjective proximity to the goal (M = 4.71, SD = 1.70 vs. M = 4.53, SD = 1.58, $t(63) = 0.44$, $p = 659$). Experimental conditions did also not differ on either the pre-manipulation measures of goal ambivalence, goal value, and expectancy, nor on the post-manipulation measures of intention certainty (M = 5.89, SD = 1.28 vs. M = 6.12, SD = 0.74, $t(63) = 1.13$, $p = .262$) and determination (M = 5.52, SD = 1.32 vs. M = 5.82, SD = 0.88, $t(63) = 1.09$, $p = .281$).

Table 5

Results of regression predicting intention certainty and determination in Study 4

	Intention certainty				Determination			
Predictor	*B*	*SE(B)*	95% CI	*p*	*B*	*SE(B)*	95% CI	*p*
Goal ambivalence	-0.34	0.12	[-0.59, - 0.10]	.007	-0.19	0.16	[-0.51, 0.14]	.245
Goal proximity[a]	-0.29	0.17	[-0.63, 0.05]	.089	-0.30	0.22	[-0.75, 0.14]	.178
Interaction[b]	-0.67	0.17	[-1.01, -0.33]	<.001	-0.72	0.22	[-1.17, -0.28]	.002
R^2 / ΔR^2			.58 / .11				.38 / .11	

Note. [a] 0 = distant, 1 = close. [b]Interaction between goal ambivalence and experimental condition. CI = confidence interval. R^2 = outcome variance explained by the full model. ΔR^2 = variance explained in this model by the interaction term.

Test of hypothesis. Despite finding no significant effect on our manipulation check, we proceeded to test the interaction hypothesis with procedures analogous to Study 2. Results of regression analyses predicting intention certainty and determination are shown in Table 5. Both models evidenced the predicted interaction effect. Simple slopes of the interactions are depicted in Figure 4. At high levels of goal ambivalence, mentally simulating successful (close condition) vs. unsuccessful progress (distant condition) had a negative effect on both intention certainty, *B(SE)* = -0.97(0.24), 95% CI [-0.45, -0.49], $p < .001$, and determination, *B(SE)* = -1.03(0.32), 95% CI [-1.66, -0.40], $p = .002$. At low levels of goal ambivalence, the manipulation had no significant effect on either intention certainty, *B(SE)* = 0.38(0.24), 95% CI [-0.10, 0.86], $p = .120$, or determination, *B(SE)* = 0.42(0.32), 95% CI [-0.21, 1.05], $p = .187$.

The two models were then run including age, gender, ability to imagine the situation, goal value, and expectancy, as well as the interactions of goal value and expectancy with the experimental condition. The interaction effects between goal ambivalence and experimental condition where somewhat smaller when controlling for these variables, but remained non-zero in predicting both intention certainty, *B(SE)* = -.40(0.20), 95% CI [-0.79, -0.01], $p = .046$, and determination, *B(SE)* = -0.68(0.28), 95% CI [-1.23, -0.12], $p = .018$. The interactions of the experimental condition with goal value and expectancy had no statistically significant effects on either of the outcome variables.

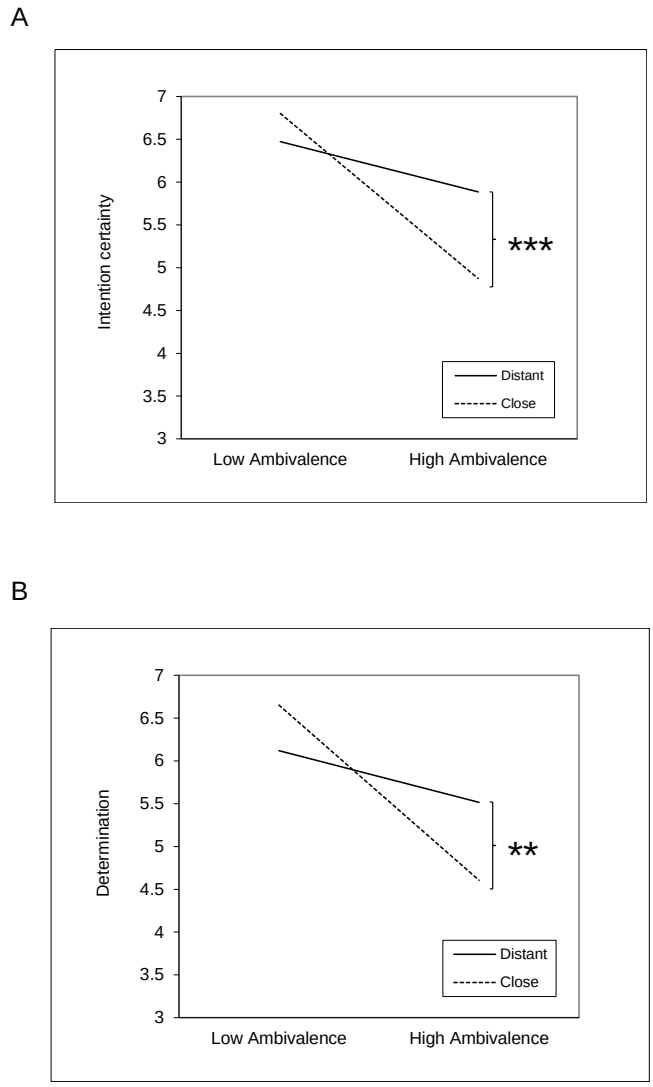

Figure 4. Simple slopes of the interaction between goal ambivalence and goal proximity predicting (A) intention certainty and (B) determination in Study 4.

Note. $^{**}p < .01$. $^{***}p < .001$. High and low levels of goal ambivalence represent values one standard deviation above and below the respective means. The scale of the outcome variable ranged from 1 to 7 and was modified for the graphical display.

Brief Discussion

The findings of Study 4 support our hypothesis to some extent. On the one hand, we found strong interaction effects on both outcome measures that evidenced non-redundancy of

goal ambivalence with goal value and expectancy, replicating and extending the effects of Studies 1 through 3. On the other hand, the mental simulation did not appear to affect participants' subjective perceptions of proximity to the goal (or at least, our 1-item measure of the construct). Thus, even though the effect resembled the one we predicted for subjective proximity, we cannot confidently contend that a sensation of feeling closer to the goal was the mechanism which produced the effect that participants with higher levels of goal ambivalence were less committed to their goal when envisioning successful vs. unsuccessful progress toward the goal.

Extant research on mental simulations as a self-regulatory strategy may help to bridge this explanatory gap. We used a simple mental simulation of a positive vs. negative goal outcome in the present investigation. Previous studies have shown that indulging in fantasies about positive outcomes decreases motivation and performance via mental attainment and reduced energization (Oettingen, 2012; Pham & Taylor, 1999). Research on *fantasy realization theory* (reviewed in Oettingen, 2012) shows that instead mentally contrasting a future desired outcome with present less-than-desired reality leads to goal commitment in line with individuals' expectations of success, because it evokes a discrepancy between future and reality that activates these expectations. Perhaps, in individuals who are ambivalent regarding their goal, envisioning only successful goal pursuit can likewise render salient a discrepancy between anticipated desired and undesired aspects of the future (cf. Job & Brandstätter, 2009). Thus, it could be the mere attentional salience of the implications of goal attainment, rather than its perceived temporal or progress-related closeness, that produced the negative effect on commitment in the close vs. distant condition among participants with higher goal ambivalence. This explanation is intriguing because it suggest that the same observed negative effect of a "positive" fantasy could be owed to different psychological mechanisms in individuals with high vs. low goal ambivalence.

General Discussion

No comprehensive textbook on motivation or social psychology is complete without a discussion of goal gradients and the Lewinian categorization of conflict. Building on these iconic theories as well as newer approaches, we conceptualized goal ambivalence as the subjective experience of an approach-avoidance conflict and hypothesized that when it occurs, commitment to a personal goal abates with increasing goal proximity. We found empirical support for this prediction in four studies. In Study 1, self-reported subjective proximity to the goal of attaining a degree was positively associated with one indicator of goal commitment, decisional regret (and indirectly negatively with the second indicator, determination) in first-year undergraduate students at high levels of goal ambivalence. In Study 2, manipulated subjective temporal proximity to the same goal had a negative effect on intention certainty at high goal ambivalence. In Study 3, goal ambivalence predicted a decline in intention certainty to participate in a half-marathon with increasing objective temporal proximity to the goal. Finally, in Study 4, future entrepreneurs who imagined succeeding vs. failing at their goal of founding a business experienced less goal commitment, as indicated by intention certainty and determination, when their ambivalence toward this goal was high. Thus, the predicted effect appears to generalize across different domains and forms of goal proximity.

Ambivalence as a Valid Approximation of Approach-Avoidance Conflict

With these findings, we establish experienced goal ambivalence as a conceptually historical, but nonetheless novel and original determinant of goal gradients. As outlined in the introduction to this paper, theoretical explanations and empirical investigations of the goal gradient effect have aligned with the change of paradigms in psychological science over time to acknowledge cognitive processes, just as motivation is now considered a function of perceived expectancy and value rather than a product of habit and drive, and goals defined as subjective internal representations of desired end states rather than conditioned stimuli (Bargh et al., 2010;

Fishbach & Ferguson, 2007). In our view, the transition from a quintessentially behavioral phenomenon to an evaluative appraisal likewise represents a timely development of the approach-avoidance conflict construct. The present research demonstrates that the subjective mental representation of goals as ambivalent has an effect analogous to what one would expect in the case of a behavioral approach-avoidance conflict stemming from simultaneous extrinsic reward and punishment. Conflict theory-based explanations for goal gradients have been dismissed as post-hoc (Liberman & Förster, 2008). However, we believe that our theoretically derived hypothesis and empirical operationalization of goal-related conflict adds to previous efforts aimed at identifying the conditions under which motivation decreases rather than increases closer to a goal (Bonezzi et al., 2011; Touré-Tillery & Fishbach, 2011).

Ambivalence as a Determinant of Gradients in Personal Goal Pursuit

We further contribute to previous research on goal gradients by extending it to the context of personal goals. In spite of Lewin's (1951; and also Miller's, 1944) examples of real-world personal goal pursuit, most previous studies with human participants have examined motivational gradients on simple laboratory tasks imposed by the experimenter (e.g., Bonezzi et al., 2011; Liberman & Förster, 2008; Losco & Epstein, 1977), goals with clear extrinsic rewards and low risk of negative implications, such as participating in customer reward programs (e.g., Kivetz et al., 2006; Nunes & Drèze, 2006), or hypothetical scenarios that carry little personal relevance (e.g., Heath et al., 1999). In the present research, we investigated distance-dependent differences in commitment regarding self-set personal goals while participants were in the process of pursuing them, thus adding potential value by generalizing validity to personally relevant real-life pursuits.

Personal goal pursuit is clearly relevant to one's self and identity (e.g., Brunstein, 2000; McGregor & Little, 1998). This raises some interesting analogies of the present results with previous research on temporal self-appraisal theory (Wilson & Ross, 2001), which relies on the

differential self-relevance of close vs. distant identities. Goals which are subjectively closer in time are assumed to entail stronger relevance for one's current identity and thus to instill a sense of urgency to successfully attain them in order to preserve positive self-regard (Peetz et al., 2009; Wilson et al., 2012). The negative effects of goal proximity on goal commitment among participants with high ambivalence in the present studies suggests that the perceived negative aspects of ambivalent goal pursuit may pose an increasingly stronger threat to the self as the goal appears closer in time and therefore lead to a reconsideration of one's commitment. On a related note, our results concur with the well-established effect of diminishing optimism as a function of increasing proximity to self-relevant feedback (e.g., Gilovich et al., 1993). Numerous studies in this line of research have found that individuals lower their outlook on such diverse outcomes as medical test outcomes, starting salaries, and performance on laboratory tasks as they get closer to a "moment of truth" (Carroll, Sweeny, & Shepperd, 2006). In a situation where both desired and undesired outcomes are anticipated and somewhat uncertain, down-regulating motivation may brace for unwanted self-detrimental consequences and prepare for disengagement from the goal to prevent regret and disappointment.

Ambivalence as a Unique Characteristic of Personal Goals

Our findings are also instructive for incipient research efforts on goal ambivalence in demonstrating the non-redundancy of goal ambivalence and goal commitment. Critics may argue that our measures of goal commitment, especially those reflecting decisional certainty, share some conceptual overlap with the ambivalence construct**.** However, due to the fact that interaction effects are symmetrical by nature, Figures 1, 2, and 4 depicting the interaction effects in the respective studies, can also be read from a different angle and interpreted such that the correlation between ambivalence and commitment is moderated by proximity to the goal. In all three studies, it is evident that while the correlation is negative overall, it becomes markedly stronger when individuals are subjectively closer to the goal than when they are subjectively

farther away. This finding is important because it shows that although goal ambivalence and goal commitment are strongly related, feeling conflicted about a given goal, and feeling (less) determined to reach it, are not synonymous. Further differentiating goal ambivalence from other central motivational properties of the goal, in Studies 2 through 4, the effects of goal ambivalence were non-redundant with the effects of goal value and expectancy. As expected, subjective conflict regarding the goal appears to create a distinct self-regulatory dynamic that is independent of its desirability and realizability.

Limitations of the Present Research

As is the case for most research, the reported studies have strengths as well as weaknesses. The following caveats should be kept in mind when interpreting the results of the present studies.

Perhaps most obvious, in none of the four studies a main effect of proximity to the goal on the outcome variable emerged, with the exception of a positive correlation between goal proximity and determination in Study 1. Likewise, a positive effect of goal proximity on goal commitment at low levels of goal ambivalence was found only in Study 2. Given the high degrees of goal commitment across all studies, the lack of an overall positive goal gradient effect most likely reflects ceiling effects in our outcome measures.[17] However, alternative explanations must be taken into account. Commitment is assumed to be high and invariant for self-set goals (Klein et al., 1999) and existing investigations have also found stable goal commitment over time (Brunstein, 1993). We are not aware of studies documenting an increase in goal commitment during goal pursuit and can therefore not infer from previous or the present research whether the lack of a positive goal gradient effect is due to (a) characteristics of the particular goals examined (ceiling effects), (b) the general nature of the goal commitment construct (unlikely to change), or

[17] It should be noted that this pattern of results prevailed when using non-parametric procedures to account for non-normal distributions of the outcome measures.

(c) specifics of the measures we utilized (not indicate of goal motivation). Although the use of self-reported measures of goal commitment was aligned with our theoretical approach to the goal gradient hypothesis in personal goal pursuit, in retrospect a supplementation of these measures with behavioral indicators of effort and persistence might have benefited a less equivocal interpretation of (the absence of) positive goal gradient effects. Relatedly, participants also reported high levels of goal value and expectancy across studies, again indicating that they were highly motivated reach their goals, and perhaps leading to an underestimation of effects. In any case, it seems desirable to examine the robustness of the reported effect in goal pursuits that exhibit a broader range of value, expectancy, and commitment, which render both an increase in goal commitment and goal disengagement more likely courses of action.

Especially in Studies 3 and 4, sample sizes were small due to a limited pool of potential participants. It should be emphasized that samples may have also been selective, as indicated not only by the high goal value, expectancy, and commitment levels, but also by the apparent attrition of more ambivalent participants in Study 3. It seems likely that individuals who feel conflicted about goal pursuit avoid participating in a study centered around this goal, as confrontation with the topic may perhaps be expected to reinforce mixed feelings and interfere with goal-directed action. However, this assumption remains speculative and again calls for future efforts to investigate effects in more diverse samples of goals and participants.

Some ambiguity remains regarding the mechanism of the effect in Study 4. In light of the non-significant manipulation check in this experiment, we cannot be sure that the mental simulation administered effected subjective feelings of distance to the goal, and it therefore may be untimely to conclude that it aligns with the goal proximity operationalizations of the preceding studies. The pattern of results across studies was consistent, however, raising questions about either the validity of the manipulation check or potential alternative mechanisms of the effect.

Finally, we did not address potentially different effects of the mere subjective representation vs. *actual experience* of goal progress. We distinguished between two dimensions of

distance in goal pursuit, temporal distance and goal progress. In Studies 2 and 3, we substantiated that both subjective and objective *temporal* distance produced similar results with regard to the goal ambivalence effect. But we did not test the same assumption for goal *progress,* as our manipulation in Study 4 was designed to target only subjective perceptions of progress. Indeed, there is some reason to believe that the interaction with goal ambivalence could be reversed with objective goal progress. Success vs. failure at goal progress can be seen as positive vs. negative information or feedback regarding the goal. Research on the effects of feedback during goal pursuit (Brunstein, 2000; Fishbach, Eyal, & Finkelstein, 2010) as well as the malleability of ambivalent attitudes through situational cues as well as task feedback (Bell & Esses, 2002; Riketta & Ziegler, 2007) could be interpreted to suggest that individuals who are initially ambivalent about a goal might also be positively reinforced in their decision to pursue it when they experience success as opposed to failure during goal pursuit. Future research may wish to test these differential hypotheses against each other.

Implications for Research on the Self-Regulation of Goal Pursuit

Despite their limitations, the results of the present studies clearly indicate that goal ambivalence seems to affect changes in goal commitment and hence, impact self-regulation during goal pursuit. Some relations to other theoretical perspectives on this extensively researched topic are noteworthy.

In discussing the results of Study 4, we have already touched upon potential implications of goal ambivalence for the effects and psychological mechanisms of mental simulations, as well as the potential differences between subjectively perceived vs. actual goal progress. With regard to perceived goal progress, several recent investigations point to the self-regulatory relevance of framing progress in terms of either already-achieved or yet-to-achieve progress (so called to-date vs. to-go frames; Bonezzi et al., 2011; Koo & Fishbach, 2008, 2012; Wiebenga & Fennis, 2014). In the present studies, the focus on distance remaining to the goal may have instilled a future-

oriented to-go frame, whereas some of the outcome measures such as decisional regret could have led participants to adopt a retrospective to-date focus. The latter entails not only a representation of achieved progress, but perhaps also of resources invested, which may be perceived as sunk costs if one is considering disengagement from an ambivalent goal. It would therefore be interesting to explore whether explicitly emphasizing one over the other differentially interacts with goal ambivalence to predict motivation and goal-directed action.

It may also prove worthwhile to investigate the role of goal ambivalence in the regulation of multiple goals, which is the rule rather than an exception in real-life goal pursuit, and known to influence the course of motivated behavior toward a focal goal (Carver & Scheier, 1998; Fishbach & Dhar, 2008; Louro et al., 2007). Inter-goal conflict is related to, and likely contributes to the experience of goal ambivalence (Emmons & King, 1988). Thus, on the one hand goal ambivalence may be influenced by the presence of competing pursuits. On the other hand, the greater malleability of commitment with increasing proximity to the goal in the present studies suggests that ambivalence itself may affect the allocation of resources among them. Factoring goal ambivalence into the self-regulatory effects established by previous research could yield some insights into questions of causality as well as potential interactions.

Turning back to literature on perceived temporal distance, relations of goal ambivalence to regulatory focus become apparent. Regulatory foci are strategic motivational orientations that render one sensitive to either the presence or absence of positive outcomes (promotion focus) or the presence or absence of negative outcomes (prevention focus; Higgins, 1997). In line with the assumption that losses loom larger than gains in the near future, the relative impact of prevention focus becomes larger for proximal goals, whereas promotion-focused concerns dominate in the appraisal of temporally distant goals (Pennington & Roese, 2003). Similarly, prevention- vs. promotion framing renders products more appealing in the immediate vs. distant future (Mogilner, Aaker, & Pennington, 2008). Regulatory focus has also been shown to moderate behavioral goal gradient effects, such that avoidance gradients become steeper with increasing

proximity to the goal for those in a prevention focus, whereas approach gradients increase at a steeper rate for those in a promotion focus (Förster et al., 1998). These effects are further amplified when matching promotion focus with success feedback, and prevention focus with failure feedback (Förster, Grant, Idson, & Higgins, 2001). Even though in these studies, approach and avoidance refer to regulatory strategies as means to attain a goal, rather than opposing action tendencies toward or away from the goal, obvious parallels would nonetheless merit further investigation on how goal ambivalence relates to promotion and prevention as strategic approach and avoidance orientations.

Conclusion

It should be evident by now that human personal goal pursuit is more complex than rats running toward a source of feeding within the restricted confinements of a maze alley. With the present research, we nevertheless sought to make the point that basic principles of motivation derived from classic studies can help explain this very complexity. In fact, Lewin's concept of approach-avoidance conflict plays only a menial role in modern theories of goal pursuit, yet led us to assume that the valuation of a goal can not only be theoretically conceptualized as more than one-dimensional, but also subjectively appraised as such. We believe that this perspective holds promise to contribute to the understanding of both the nature and the processes of human motivation, spanning phenomena of goals looming larger and beyond.

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PART III

MIXED EXPECTATIONS:

EFFECTS OF GOAL AMBIVALENCE DURING PREGNANCY ON MATERNAL WELL-BEING, STRESS, AND COPING

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Abstract

Background. We hypothesized that experiencing ambivalence toward the parenthood goal would be related to indicators of well-being, stress and coping among women with planned pregnancies.

Methods. Cross-sectional associations between goal ambivalence and the outcome measures were tested in two online studies (*N*s = 208, 109). Study 1 additionally included a postpartum measurement point (*N* = 71) to examine prospective effects of goal ambivalence, and Study 2 extended the investigation to within-person effects in a three-week daily diary assessment.

Results. In Study 1, goal ambivalence in pregnant women was positively associated with depressive symptoms, perceived stress, and avoidance-oriented coping, and negatively associated with coping self-efficacy. Goal ambivalence also predicted changes in life satisfaction, depressive symptoms, perceived stress, and coping self-efficacy postpartum. Study 2 replicated the cross-sectional results of Study 1 and revealed within-person effects of daily fluctuations in goal ambivalence on day-to-day changes in positive emotions, negative activation, and avoidance-oriented coping.

Conclusions. Goal ambivalence appears to be a relevant factor for maternal well-being, stress, and coping during pregnancy and should be considered for inclusion in future studies of pre- and perinatal psychological processes.

Introduction

Having children is an important life goal for many women. But being a parent is not only, and certainly not always, a source of pleasure and fulfillment. It also entails inconvenience and personal opportunity costs. Accordingly, the decision to have a child is often characterized by the anticipation of positive as well as negative consequences and thus perceived with ambivalence by a substantial proportion of women in the reproductive age range (Brähler, Stöbel-Richter, & Schumacher, 2001; Neal, Groat, & Wicks, 1989; Pinquart, Stotzka, & Silbereisen, 2008). Ambivalence also seems to abound *after* the positive decision to have a child. Conversations with expectant mothers and healthcare practitioners or a short search on the internet will readily reveal accounts of ambivalent feelings during pregnancy, like the following:

> I am 35 and have wanted to be pregnant for some time. I am now 9 weeks and feeling mixed emotions. I'm afraid of all the changes that a baby will bring, that I won't be a good mom, that the baby won't be healthy. I sometimes wish it would just go away. Then I feel guilty. I'm hoping it's hormonal. Anyone else have doubts and fears? (MLG, 2005)

However to date, no systematic investigation of ambivalence toward the parenthood goal has been conducted during gestation. Given that in most world regions, more than half of all pregnancies are planned (Sedgh, Singh, & Hussain, 2014), an examination of the motivational dynamics in the pursuit of the parenthood goal can relevantly contribute to the psychological science of health and well-being. With the present research, we thus set out to explore the implications of *goal ambivalence* among women with planned pregnancies.

Goal Ambivalence During Pregnancy

Goal ambivalence describes an approach-avoidance conflict in the pursuit of a personal goal, that is, the desire to attain and, at the same time, an urge to avoid a chosen end state (Emmons & King, 1988; Emmons, 1986), which results in perceiving this end state as simultaneously positive and negative. Our application of this construct to the goal of childbearing

characterizes the situation of a woman with a fully intended pregnancy, i.e., who has actively decided to pursue this goal, but nevertheless experiences conflicting affective, cognitive, and behavioral reactions at the thought of following through with her decision.

Even though pursuing the goal of having a child arguably begins long before conception, we chose to focus our investigation of the effects of goal ambivalence on women who are already pregnant, for three reasons. First, pregnancy is a distinct and time-limited period with universally shared features, which provides an excellent research context for health psychologists (Dunkel Schetter, Gurung, Lobel, & Wadhwa, 2000). Second, pregnancy represents a unique and particularly interesting situation regarding goal pursuit from a motivational point of view. On the one hand, the woman is well under way to goal attainment and free to take actions to prepare for a healthy birth and motherhood. On the other hand, there is not much she can do to actually accelerate the process leading up to childbirth. In addition, it is ethically challenging (e.g., during the first weeks of pregnancy) or impossible (e.g., in the later stages) to disengage from this goal when already intentionally pregnant. Thus, neither actively advancing goal pursuit (approach) nor giving up the goal (avoidance) are viable options to resolve an approach-avoidance conflict behaviorally when it arises. In a sense, a pregnant woman who experiences conflicting reactions toward the goal is caught in the middle of goal pursuit. Therefore, it is all the more important to understand to what extent well-being and stress appraisals, as well as coping strategies and resources, are implicated by goal ambivalence. Third, identifying predictors of these psychological experiences during pregnancy is especially relevant from a practical perspective, because they hold the potential to adversely affect not only the health of the pregnant woman, but also that of her unborn child (Dunkel Schetter, 2011; Lobel, Hamilton, & Cannella, 2008). Below, we detail our hypotheses regarding the effects of goal ambivalence on indicators of well-being, stress, and coping.

Effects of Goal Ambivalence on Well-Being and Stress

We posit that goal ambivalence during pregnancy is associated with impaired subjective well-being and elevated stress levels. Like other forms of intrapsychic conflict, the experience of ambivalence can create an aversive state of tension (van Harreveld, van der Pligt, & de Liver, 2009). To wit, approaching a personal goal that one does not wholeheartedly embrace should inevitably impact one's affective state and satisfaction with the current situation. Consequently, ambivalence in the pursuit of personal strivings has been associated with negative affect, depression, and anxiety (Emmons & King, 1988; Kelly, Mansell, & Wood, 2011). Due to the abovementioned special circumstances of pregnancy, we expect that these findings generalize to the present context to produce a pronounced effect of goal ambivalence on prenatal measures of global and momentary well-being as well as depressive symptoms and perceived stress.

The prevalence of depressive symptoms and stress among pregnant women poses a pressing public health concern. A large body of evidence documents a high incidence and significant negative effects of both depressive symptomatology and stress appraisals during pregnancy. Contrary to mainstream portrayals depicting pregnancy and childbirth as joyful events, depression constitutes the most prevalent perinatal complication, and depressive symptoms in the subclinical spectrum are even more common (Banti et al., 2011; Bennett, Einarson, Taddio, Koren & Einarson, 2004; Perry, Nicholson, Christensen, & Riley, 2011; Seyfried & Marcus, 2003). Consequences of depressive symptomatology during pregnancy include increased risk of preterm birth, low birth weight, and impaired infant behavioral and neurodevelopment, among others (Grote et al., 2010; Pacheco, & Figueiredo, 2012; Koutra et al., 2012). The topic of prenatal psychological stress has also attracted considerable research attention. Types and sources of stress during pregnancy that have been examined include episodic stressors such as critical life events, chronic strain (e.g., exposure to racism or occupational stress), general or state anxiety, as well pregnancy-specific stress or anxiety (Dunkel Schetter & Glynn, 2011). There is widespread consensus in the literature that stress and anxiety during pregnancy can negatively affect birth

outcome as well as fetal and long-term child development via endocrine, immune, cardiovascular, and behavioral pathways (for reviews, see Dunkel Schetter, 2011; Dunkel Schetter & Glynn, 2011; Lobel et al., 2008).

In spite of the ongoing and prolific research efforts, much of the variability in affective and stress-related experiences during pregnancy remains to be explained. Though several determinants at the individual (e.g., personality traits) and contextual (e.g., socioeconomic status) levels have been identified, factors grounded in theories of motivation are rarely considered within the pregnancy research arena (Dunkel Schetter, 2011). Due to its known effects on well-being and stress, we deem goal ambivalence a promising addition to the field.

Effects of Goal Ambivalence on Coping

Taking a motivational perspective may also contribute to the understanding of how women cope with the challenges of pregnancy. Insights into the adverse consequences of prenatal stress have recently sparked researchers' interest in the resources, skills, and behaviors that pregnant women recruit in order to deal with the diverse demands that are placed on them during this period. However, so far findings on the predictors and correlates of coping strategies are inconclusive, partly due to the large heterogeneity in measurement and sampling approaches, and a lack of theory-driven hypotheses tailored to the pregnancy context (Guardino & Dunkel Schetter, 2014; Lobel et al., 2008). For instance, some researchers have used the influential transactional model of stress and coping (Lazarus & Folkman, 1984) to guide their investigation, but applied generic measures of coping without referring to the pregnancy period or pregnancy-specific stressors, thereby disregarding the transactional model's crucial premise of coping as "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands [..]" (Lazarus & Folkman, 1984, p. 141). As outlined above, we conceive of goal ambivalence as a source of stress emanating from appraisals of the current pregnancy, and hence

propose that it affects the woman's specific responses to the situation of gestation and impending childbirth.

We base our hypotheses on the categorization of coping as approach- and avoidance-oriented (or engagement- and disengagement-oriented) efforts (Roth & Cohen, 1986). Aside from the obvious semantics, this categorization shares with the concept of approach-avoidance conflict the notion that individuals are motivated to either orient their attention and behavior toward a challenging event or situation, or withdraw from a threat to deal with the arousal it evokes. Furthermore, it maps onto dimensions of pregnancy-specific coping strategies, namely, *planning-preparation for motherhood* (confronting the challenge by seeking information and taking preparatory actions) and *avoidance* (minimizing confrontation with the challenge, e.g., sleeping to escape problems or avoiding thoughts about pregnancy) in inventories developed for and validated in pregnant populations (Hamilton & Lobel, 2008; Yali & Lobel, 1999, 2002). We expect that goal ambivalence is positively associated with avoidance-oriented coping strategies, which are often classified under the umbrella of emotion-focused coping strategies and typically occur in reaction to stressors with low subjective controllability (Folkman & Moskowitz, 2004; Park, Armeli, & Tennen, 2004). To recapitulate, we assume that an approach-avoidance conflict during pregnancy cannot be solved by taking active behavioral control. Moreover, at this stage mixed feelings about the decision to have a child may be perceived as intrusive, unwanted, and shameful, hence rendering the use of avoidance-oriented coping strategies an ostensibly appropriate response. In contrast, there is no straightforward prediction for approach-oriented coping. On the one hand, ambivalent women may use information seeking strategies (e.g., inquiring with doctors or nurses about the pregnancy or asking others for advice and experiences regarding parenthood) or engage in planning activities (e.g., shopping for baby supplies or making arrangements for childcare) to reinforce their decision and resolve conflicting reactions. On the other hand, they might fear that seeking information could potentially yield undesirable facts (e.g., concerning medical diagnoses or the difficulties of raising a child) that exacerbate

negative pregnancy appraisals (Bell & Esses, 2002), and the presence of avoidance tendencies may inhibit any goal-directed action (Emmons & King, 1988).

Beyond specific behavioral strategies, we postulate that goal ambivalence affects women's prospective expectations about their ability to cope successfully with the demands of parenthood. Such *coping self-efficacy* is specific to the post-intentional phase of goal pursuit and represents an important personal resource in the anticipation of personally relevant critical events (Schwarzer & Knoll, 2003; Schwarzer & Renner, 2000). Because goal ambivalence comprises mixed expectations about the event – in this case, having a child – itself, it is likely to also reduce optimistic self-beliefs about dealing with potential difficulties in the wake of its occurrence.

To summarize our hypotheses, we predict that goal ambivalence experienced by women with planned pregnancies is negatively associated with general well-being, positively associated with depressive symptoms, perceived stress and avoidance coping, and negatively associated with coping self-efficacy.

Further Objectives

In addition to delivering evidence for the hypothesized relationships between goal ambivalence and the psychological outcome measures during pregnancy in two independent samples, we seek to approach our research question with utmost theoretical and methodological rigor by addressing three further issues.

First, the conceptualization of goal ambivalence as an approach-avoidance conflict regarding a desired *end state* dictates that effects on well-being and stress are not only predicted by goal ambivalence during goal pursuit (i.e., pregnancy), but also following successful goal attainment (i.e., after giving birth). Only if the effects of goal ambivalence during pregnancy extend to well-being and stress postpartum, can we be sure that conflicting reactions toward the goal actually pertain to the valence of the end state itself (cf. Emmons & King, 1988), and not,

for instance, to concerns about reaching the goal, or other aspects of goal pursuit. We thus include a postpartum measurement point for a subsample of participants in Study 1.

Second, theories of stress such as the transactional model (Lazarus & Folkman, 1984) regard the experience of stressors, and reactions toward them in the form of stress appraisals and coping behaviors, as a process that takes place *within* persons, calling for research designs that appropriately model these assumptions. We therefore set up parts of our studies to allow for inferences about such within-person processes by using participants as their own controls in predicting medium-term change (Study 1) and short-term fluctuations (Study 2) in the outcome measures.

Finally, the proliferation of constructs in the psychological literature necessitates a demonstration of the incremental value of each new addition. In the context of the present research, we consider it important to demonstrate that the predicted effects of goal ambivalence are independent of other pregnancy-specific sources of stress. *Pregnancy-specific stress* (also termed pregnancy anxiety or pregnancy worries) encompasses concerns about issues related to gestation such as physical symptoms, changes in appearance, labor and delivery, or the baby's health. It has consistently emerged as a powerful predictor of important outcomes, for example, preterm birth, over and above the effects of general stress (Alderdice, Lynn, & Lobel, 2012; Lobel et al., 2008). A positive and bi-directional relationship between pregnancy-specific stress and goal ambivalence is certainly conceivable. Ambivalence could render the negative aspects of the pregnancy more salient, and stressful experiences might intensify negative evaluations – and hence mixed reactions – toward the goal of childbearing. However, the experience of goal ambivalence is defined by a motivational origin, whereas pregnancy-specific stress is not. We contend that this motivational aspect distinguishes goal ambivalence from other stressors associated with the prenatal period and precipitates unique effects on well-being, stress, and coping. In order to substantiate this claim empirically, we control for appraisals of pregnancy-specific stressors in our analyses of the within-person effects of goal ambivalence.

Study 1

Study 1 was a correlational online study consisting of two parts: A *pregnancy questionnaire* surveying pregnant women in all stages of gestation was used to cross-sectionally test the predicted associations between goal ambivalence during pregnancy and prenatal measures. Further, a *postpartum questionnaire* was administered to a voluntary subsample of participants in order to examine prospective effects of goal ambivalence on changes in the outcome measures following goal attainment (i.e., childbirth).

Method

Participants and procedure. Participants were recruited via announcements of a study on "The desire to have a child, pregnancy, and emotional experiences" on several German-speaking online platforms and in respective newsletters with a link to an online questionnaire. Two hundred thirty-one pregnant women provided complete data on all study variables. Twenty-three women indicated that their pregnancy was not planned and were thus excluded from the analyses, resulting in a final sample size of $N = 208$ for the pregnancy questionnaire. Participants' age ranged from 18 to 45 years ($M = 30.78$, $SD = 4.89$); their gestational age at completion of the questionnaire ranged from 4 to 41 weeks ($M = 20.82$, $SD = 10.37$). All participants indicated that they were currently in a relationship, with 192 (92.3%) co-habiting with their partner. One hundred women (48.1%) already had one or more children. 132 (63.5%) had completed post-secondary education, 168 (80.8%) were currently employed, and 121 (58.2%) planned to resume work during the first year following childbirth.

At the end of the pregnancy questionnaire, participants were given the option to receive a follow-up questionnaire postpartum. One hundred and seventeen women provided consent and a valid e-mail address. To each of these women a link to a second online questionnaire was sent approximately 9-10 weeks after the expected due date. Seventy-eight participants completed the postpartum questionnaire. Again, women with unplanned pregnancies were excluded from the

analyses, leaving a sample size of $N = 71$. Participants filled out the questionnaire 11 weeks postpartum on average. For the prospective analyses, data from the pregnancy and postpartum questionnaires were matched through participant-generated codes in order to preserve participant anonymity.

Pregnancy questionnaire measures. *Goal ambivalence* was measured with an 8-item measure of experienced goal ambivalence (Koletzko, Herrmann, & Brandstätter, 2015) referring to the parenthood goal ("When I think about my decision to have a [another] child -"). It comprises statements concerning conflicting affective (e.g., "- I have mixed feelings"), cognitive (e.g., "- my thoughts are both positive and negative"), and conative (e.g., "- I am torn") reactions toward the goal as well as affective-cognitive inconsistencies (e.g., "- my feelings contrast with my convictions") that are rated on a 7-point Likert-type scale anchored at 1 = *not at all* and 7 = *completely*. Cronbach's *a* for this scale was .94.

As a measure of general well-being, *life satisfaction* was measured with a German version (Glaesmer, Grande, Braehler, & Roth, 2011) of the 5-item Satisfaction With Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985), rated on a 7-point Likert-type scale anchored at 1 = *not at all* and 7 = *completely* ($a = .83$).

Depressive symptoms were measured with the German version (Bergant, Nguyen, Heim, Ulmer, & Dapunt, 1998) of the Edinburgh Postnatal Depression Scale (EPDS; Cox, Holden, & Sagovsky, 1987), which assesses maternal mood during the past 7 days with 10 statements rated on a 4-point scale of increasing symptoms ranging from 0 to 3 ($a = .83$). The EPDS has been validated in pregnant and non-pregnant populations and is commonly used to assess prenatal as well as postnatal depressive symptomatology (e.g., Evans, Heron, Francomb, Oke, & Golding, 2012; Pluess, Bolten, Pirke, & Hellhammer, 2010).

Perceived stress was measured with a German version (Büssing, 2011) of the Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983). Participants answered 10 questions

regarding the extent of stress perceptions during the past month on a 5-point Likert-type scale ranging from 1 = *never* to 5 = *very often* that was summed into an overall score (*a* = .85).

Pregnancy-specific stress was measured with the German version (Pluess, Bolten, Pirke, & Hellhammer, 2010) of the Prenatal Distress Questionnaire (Yali & Lobel, 1999). The questionnaire consists of 12 statements reflecting worries related to pregnancy and birth (e.g., bodily changes, preterm delivery) that are rated on a 5-point Likert-type scale ranging from 1 = *not at all true* to 5 = *very true* (*a* = .79).

Pregnancy-specific avoidance- and approach-oriented coping strategies were measured with the subscales *avoidance* and *planning-preparation* from the Revised Prenatal Coping Inventory (NuPCI; Hamilton & Lobel, 2008). As the NuPCI had not been previously applied in a German-speaking population, it was translated into German by the first author and independently back-translated by the second author who is a native English speaker; minor inconsistencies were resolved by discussion. Participants rated the 11 avoidance strategies (e.g., sleep in order to escape problems; *a* = .73) and 15 approach strategies (e.g., asking doctors and nurses about birth; *a* = .85) referring to the extent to which they had employed them during the past month on a 5-point Likert-type scale ranging from 0 = *never* to 4 = *very often.*

Partly relying on the Generalized Self-Efficacy scale (Schwarzer & Jerusalem, 1995), *coping self-efficacy* was measured with three items designed to capture participants' perceptions of their capabilities to cope specifically with the demands of parenthood (e.g., "I am confident that I will be able to deal efficiently with the challenges of raising and parenting my child"; *a* = .82),

Postpartum questionnaire measures. The same measures of life satisfaction (*a* = .82), depressive symptoms (*a* = .82), perceived stress (*a* = .89), and coping self-efficacy (*a* = .70) as in the pregnancy questionnaire were administered postpartum. Pregnancy-specific stress and coping strategies were not assessed due to their focus on the specific circumstances of pregnancy.

We also assessed a number of potential confounding factors in the postpartum questionnaire. *Neuroticism* is a personality trait that has been empirically related to decisional

ambivalence about parenthood and avoidant coping (Pinquart, Stotzka, & Silbereisen, 2008) as well as perinatal distress (Puente, Monge, Abellan, & Morales, 2011) and depression (Bunevicius et al., 2010) and is therefore likely to explain variance in our study variables. We included the 6-item neuroticism subscale (a = .79) from the short version of the NEO-Five-Factor-Inventory (Körner et al., 2008). We also asked women to indicate if any complications (N = 27, 38%), critical life events (N = 17, 23.9%), or psychological problems (N = 10, 14.1%) had occurred during their pregnancy, and whether they had been facing any physical or psychological problems since giving birth (N = 13, 18.3%), as any of these occurrences may be expected to influence postpartum well-being, stress, and self-efficacy. Finally, because of the variation in gestational week at baseline, we computed the exact time difference between completing the two questionnaires (M = 209.15 days, SD = 69.68).

Results and Discussion

Cross-sectional results. Means, standard deviations, and correlations among the pregnancy questionnaire constructs are displayed in Table 1. As expected, goal ambivalence exhibited substantial positive associations with depressive symptoms, general and pregnancy-specific stress, and avoidance-oriented coping, as well as a significant negative association with coping self-efficacy.

Table 1

Means (SDs) and zero-order correlations among the pregnancy questionnaire variables in Study 1

Variable	*M (SD)*	1	2	3	4	5	6	7
1. Goal ambivalence	2.56 (1.48)	–						
2. Life satisfaction	5.60 (0.91)	-.09	–					
3. Depressive symptoms	6.45 (4.56)	.27	-.33	–				
4. Perceived stress	23.60 (5.87)	.32	-.33	.62	–			
5. Pregnancy-specific stress	2.23 (0.64)	.44	-.26	.44	.40	–		
6. Avoidance-oriented coping	1.01 (0.56)	.43	-.24	.50	.52	.66	–	
7. Approach-oriented coping	1.90 (0.66)	.13	-.04	.18	.13	.30	.25	–
8. Coping self-efficacy	6.05 (0.88)	-.30	.24	-.20	-.20	-.45	-.33	-.03

Note. N = 208. Of the correlations shown, those ≥ .18, ≥ .20, and ≥ .25 are significant at the $p < .05$, $p < .01$, and $p < .001$ level, respectively.

However, the hypothesized negative correlation with life satisfaction was small and not statistically significant (r = -.09, p = .178). The relationship between goal ambivalence and approach-oriented coping was positive, approaching statistical significance (r = .13, p = .069).

Predicting changes postpartum. Prior to performing the prospective analyses, we checked for attrition bias by comparing the subsample with complete data in both the pregnancy and postpartum questionnaires (N = 71) with the subsample that completed only the pregnancy questionnaire (N = 137). T-tests and chi-square difference tests revealed no statistically significant differences between the two groups on any of the study or sociodemographic variables.

We conducted a series of hierarchical OLS regression models to predict changes in (a) depressive symptoms, (b) life satisfaction, (c) perceived stress, and (d) coping self-efficacy postpartum. In the first step of each model, we included the pregnancy baseline measure of the respective outcome variable along with gestational week and pregnancy-specific stress at baseline. Of the abovementioned potential confounding variables, only neuroticism displayed significant and unique relations with all four outcome variables ($|r$s$|$ = .26 – .60, ps < .028) and was thus included in the models. In the second step, the pregnancy measure of goal ambivalence was added as a predictor. Results of these final models are exhibited in Table 2.

Table 2

Results of hierarchical regressions predicting life satisfaction, depressive symptoms, perceived stress, and coping self-efficacy postpartum in Study 1

	Life satisfaction		Depr. symptoms		Perceived stress		Coping self-efficacy	
Predictor	*β*	*p*	*β*	*p*	*β*	*p*	*β*	*p*
Outcome, baseline measure[a]	.42	< .001	.03	.817	.11	.346	.33	.010
Gestational week[a]	-.12	.159	-.02	.862	-.07	.488	.02	.871
Neuroticism[b]	-.40	< .001	.59	< .001	.52	< .001	-.30	.006
Pregnancy-specific stress[a]	-.03	.756	-.06	.601	-.04	.723	-.06	.697
Goal ambivalence[a]	-.25	.009	.27	.018	.36	.001	-.32	.012
R^2 / R^2_{amb}	.57 / .05		.42 / .05		.47 / .09		.32 / .07	

Note. R^2 = outcome variance explained by all predictors in the model. R^2_{amb} = variance explained in this model by goal ambivalence. [a]pregnancy questionnaire. [b]postpartum questionnaire.

As is evident from Table 2, goal ambivalence during pregnancy positively predicted depressive symptoms and perceived stress, and negatively predicted life satisfaction and coping self-efficacy postpartum over and above any effects of the other predictors. Differences in the appraisal of pregnancy-specific stress during pregnancy, on the other hand, did not explain incremental variance in any of the postpartum outcomes.

In order to rule out alternative explanations, we added the sociodemographic (age, parity, education, current and planned employment status) and control variables (complications and critical events during pregnancy, problems before and after pregnancy, time passed between measurements) to the models in a third step. Including these predictors did not explain a significant proportion of variance in any of the outcome variables, and goal ambivalence prevailed as a significant predictor ($|\beta s| = .24 – .37$, $ps < .037$) in all four models.

Summary. Except for the rather small correlation with life satisfaction, the cross-sectional results of the pregnancy questionnaire supported our hypotheses regarding associations of goal ambivalence with well-being, stress, and coping during pregnancy. Moreover, goal ambivalence during pregnancy prospectively predicted changes in all four postpartum outcome variables, whereas pregnancy-specific stress did not, clearly corroborating the construct validity of our measure as well as its added predictive value.

A potential shortcoming of Study 1 is the treatment of goal ambivalence as a somewhat static variable. The fact that we assessed goal ambivalence at a single point in time should not detract from the possibility of unfolding motivational dynamics: Approach-avoidance conflicts and experienced ambivalence have been shown to be malleable by situational cues (Mikulincer, Shaver, Bar-On, & Ein-Dor, 2010; Newby-Clark, McGregor, & Zanna, 2002) and feelings of ambivalence likely vary across time in the same way as other reports of subjective experience. We therefore conducted a second study that explicitly considered short-term variability of goal ambivalence within persons.

Study 2

The objectives of Study 2 were to (a) provide evidence for the robustness of the cross-sectional relations of Study 1 by replicating them in a second sample of pregnant women, and (b) extend the replication of goal ambivalence effects during pregnancy to the within-person level. To this end, we conducted a study that again consisted of two parts: An *initial questionnaire* – an exact duplicate of the pregnancy questionnaire in Study 1 – was this time followed by an online *daily diary* period comprising daily assessments of goal ambivalence, well-being, stress, and coping.

Due to their repeated sampling of momentary experiences, daily diary designs allow for the inspection of within-person fluctuations of psychological states over time not tainted by retrospective bias, and are thus ideally suited to model volatile processes such as changes in current well-being and reactivity to daily stressors (Almeida, 2005; Bolger, Davis, & Rafaeli, 2003). We predicted that daily fluctuations in goal ambivalence would be associated with daily changes in positive emotions (as a measure of affective well-being) and negative activation (as a proxy for perceived stress) as well as daily avoidant coping. As an equivalent to the pregnancy-specific stress measure in the prospective analyses of Study 1, we controlled for pregnancy-specific daily hassles in the within-person analyses. We also included an assessment of pregnancy-specific daily uplifts in the daily diary questionnaire, since a day's positive as well as negative experiences may affect both ambivalence and the outcome measure. Relatedly, we statistically held the overall stress load of a given day constant, in order to avoid spurious correlations caused by other stressful events.

Method

Participants and procedure. Participants for Study 2 were recruited through postings announcing a study on "Well-being and stress experience during pregnancy" distributed through various online platforms, midwifes' and obstetricians' practices, hospitals, birth preparation and pregnancy yoga classes, schools and day-care centers in the German-speaking part of Switzerland.

Interested women were directed to the study administration e-mail address and subsequently contacted for a structured telephone interview in order to provide them with information about the study protocol, clarify any questions, enhance compliance, and screen for exclusion criteria. They were informed that they would be required to complete the same short online questionnaire of approximately ten minutes every evening for 20 subsequent days during the study period as well as an initial and a final questionnaire. They further learnt that they would be reimbursed with a voucher worth 80 CHF for a baby supply online shop, and that compensation would increase to 100 CHF if they completed every questionnaire on the day they received it. Women were not invited to participate in the study if they were under 18 years, expecting multiples, experiencing severe complications, suffering from serious physical or mental illness, or in the first trimenon (gestational week 12 or lower) at the beginning of the study period. Women were also excluded if they expected to give birth within the study period, or would not be able to complete all of the questionnaires for any other reasons (e.g., trips planned during the study period). These criteria were selected in order to minimize attrition and exclude women potentially experiencing extreme levels of stress.

One hundred and twenty-two women provided consent and participated in the study. They received an e-mail with a link to the initial questionnaire on a Thursday, and to the first of the 20 daily questionnaires the following Monday. All questionnaires were administered at 7 pm and matched through an internal serial number by the online survey tool. Thirteen women with unplanned pregnancies were excluded from the analyses. All of the remaining 109 women completed the initial questionnaire. In sum, participants provided data on 2128 daily questionnaires (2124 of which were complete on all study variables), corresponding to 97.61% of the potential 2180 measurement occasions. Thus, on average, participants responded to 19.52 of the 20 questionnaires, and each daily questionnaire was filled out by 106.20 of the 109 participants. Mean sample age was 32.06 years (SD = 3.67, range = 19-42) and gestational age was 21.96 weeks on average (SD = 7.01, range = 13-37). As in Study 1, all participants indicated

that they were in a relationship, and 105 (96.3%) were currently living with their partner. 39 (35.8%) were multiparae. The number of those with post-secondary education, who were currently working, and who were planning to work during the first year postpartum was 71 (65.1%), 92 (84.4%), and 83 (76.1%), respectively.

Initial questionnaire measures. The same measures of goal ambivalence (*a* = .90), depressive symptoms (*a* = .85), life satisfaction (*a* = .89), perceived stress (*a* = .87), pregnancy-specific stress (*a* = .79), avoidance- (*a* = .74) and approach-oriented coping (*a* = .81), and coping self-efficacy (*a* = .80) were implemented as in Study 1.

Daily diary questionnaire measures. Daily *goal ambivalence* was measured with the same 8-item scale as in the initial questionnaire. Cronbach's *a* ranged from .91 to .96 across the 20 measurement occasions (*M* = .94).

Daily *positive emotions* and *negative activation* were measured with the respective subscales of the Multidimensional Mood Questionnaire short version (Steyer, Schwenkmezger, Notz, & Eid, 1997). Participants rated four adjectives reflecting positive emotions (e.g., "good"; *a* range = .83 - .91, *M* = .87) and four adjectives reflecting negative activation (e.g., "restless"; *a* range = .73 - .86, *M* = .80) with respect to their current state of feelings on a 7-point Likert-type scale anchored at 1 = *not at all* and 7 = *very*.

Pregnancy-specific daily coping strategies were measured with the same NuPCI items as in the initial questionnaire. Participants indicated for each strategy whether they had employed it on the current day; the respective sum scores of these ratings thus reflect the extent of daily avoidance (*a* range = .32 - .71, *M* = .53) and approach coping (*a* range = .64 - .79, *M* = .70).

Pregnancy-specific daily hassles and uplifts were measured with our German translation of 20 items comprising the brief version of the Pregnancy Experience Scale (PES; DiPietro, Christensen, & Costigan, 2008). Following the procedure of the original PES (DiPietro, Ghera, Costigan, & Hawkins, 2004), participants answered two questions for each of the pregnancy-specific experiences (e.g., thoughts about labor/delivery, comments from others about

pregnancy/appearance), tapping into their appraisals as hassles ("How much has this experience made you feel unhappy, negative, or upset today?") or uplifts ("How much has this experience made you feel happy, positive, or uplifted today?"), on a 4-point Likert-type scale ranging from 0 = *not at all* to 3 = *very*. The option *This event did not occur today* was also given. The responses to each of the two questions were summed over the 20 items in order to create indices of overall hassle and uplift perceptions on a given day.[18]

One item ("All in all, how stressful was this day for you?") assessed *overall daily stress* on a 7-point Likert-type scale anchored at 1 = *not at all stressful* and 7 = *very stressful.*

Results and Discussion

Cross-sectional results. The means, standard deviations, and correlations among study variables are shown in Table 3. The relationships of goal ambivalence with the other constructs clearly mirrored those in Study 1, with the exceptions of life satisfaction, which this time exhibited the expected strong negative correlation, and a non-significant negative association with approach-oriented coping.

Table 3

Means (SDs) and zero-order correlations among the initial questionnaire variables in Study 2

Variable	*M (SD)*	1	2	3	4	5	6	7
1. Goal ambivalence	2.12 (1.05)	–						
2. Life satisfaction	5.82 (1.01)	-.40	–					
3. Depressive symptoms	5.42 (4.62)	.25	-.47	–				
4. Perceived stress	23.27 (6.23)	.31	-.43	.62	–			
5. Pregnancy-specific stress	2.16 (0.62)	.46	-.42	.38	.44	–		
6. Avoidance-oriented coping	0.87 (0.53)	.42	-.46	.53	.56	.70	–	
7. Approach-oriented coping	1.84 (0.58)	-.13	-.25	.08	.06	.28	.28	–
8. Coping self-efficacy	5.79 (0.91)	-.39	.31	-.33	-.37	-.41	-.40	-.03

Note. N = 109. Of the correlations shown, those ≥ .25, and ≥ .33 are significant at the $p < .01$ and $p < .001$ level, respectively.

[18] Not all of the pregnancy-specific hassles and uplifts items were answered on each day (due to events not occurring on a given day), therefore no coefficients of internal consistency are reported for this measure.

Predicting day-to-day fluctuations. Because the daily diary dataset consisted of day-level measurement occasions (Level 1) nested within persons (Level 2), we applied hierarchical linear modeling (Raudenbush & Bryk, 2002) in order to account for the resulting dependencies in the data. Analyses were run in R (R Core Team, 2014) with the nlme package (Pinheiro, Bates, DebRoy, Sarkar, & R Core Team, 2014) using restricted maximum likelihood estimation.

Table 4 displays the means, standard deviations, and correlations among the daily diary measures. Corroborating our previous results, daily goal ambivalence was significantly associated with daily positive emotions and negative activation, pregnancy-specific hassles, and avoidance-oriented coping, but not with approach-oriented coping, both at the level of daily measurements and aggregated at the person-level.

Table 4

Means (SDs) and zero-order correlations among the daily diary variables in Study 2

Variable	*M (SD)*	1	2	3	4	5	6	7	8
1. Goal ambivalence	1.48 (0.74)	–	-.22	.21	.29	-.11	.11	.27	.00
2. Positive emotions	5.57 (0.74)	-.26	–	.73	-.40	.27	-.44	-.36	.08
3. Negative activation	2.87 (0.76)	.27	-.78	–	.40	-.19	.47	.34	-.02
4. Pregnancy hassles	6.08 (3.64)	.34	-.47	.52	–	.14	.25	.46	.26
5. Pregnancy uplifts	15.14 (7.05)	-.11	.24	-.13	.25	–	-.10	.01	.53
6. Overall stress	3.45 (0.94)	.17	-.48	.51	.28	.03	–	.19	-.06
7. Avoidance-oriented coping	0.80 (0.88)	.32	-.44	.45	.60	.12	.23	–	.21
8. Approach-oriented coping	3.99 (1.91)	.02	-.01	.10	.43	.69	.04	.46	–

Note. Means, standard deviations, and correlations below the diagonal are at the person level (within-person aggregated daily ratings, N = 109), correlations above the diagonal are at the day level (N = 2124). Of the person-level correlations shown, those ≥ .23, ≥ .25 and ≥ .34 are significant at the $p < .05$, $p < .01$, and $p < .001$ level, respectively. Of the day-level correlations shown, those ≥ .06 and ≥ .08 are significant at the $p < .05$ and $p < .001$ level, respectively.

Prior to the focal analyses, we examined to which degree the daily ratings of the outcome variables were determined by between- vs. within-person variability. Thirty-seven per cent of the variance in daily positive emotions, 42% of the variance in daily negative activation, and 46% of the variance in each avoidance- and approach-oriented coping was located between persons. Thus, within-person fluctuations explained more than half (54% - 63%) of the total variance in all four outcomes.

To test our hypotheses, the outcome variables were then predicted by day-to-day fluctuations in goal ambivalence, holding constant day-specific hassles, uplifts, and overall stress load. We further included three additional predictors at Level 1 in the models in order to prevent possible issues of trends, cyclical components, and serial dependency inherent in the daily diary design from affecting results (West & Hepworth, 1991): First, a linear effect of time, in order to control for any changes over the course of the study period, for instance due to measurement reactivity (Barta, Tennen, & Litt, 2012). Second, a variable representing weekend days vs. weekdays, as it is common for daily diary studies to find weekend effects in mood (Cranford et al., 2008), and the daily events and activities that we assessed could also plausibly be expected to follow such weekly patterns. And third, a time-lagged variable (previous day) of the respective outcome measure to preclude temporal carryover effects (Wickham & Knee, 2013)[19] and thus ensure that the daily predictors effected a within-person *change* from the previous day. As in previous research (e.g., Riediger & Freund, 2004), the person mean of the respective outcome variable, aggregated across the 20 measurement occasions for each participant, was also included in the models as a time-invariant predictor, thus accounting for any between-person differences in the criteria (for instance, due to habitual well-being, baseline differences in sociodemographic or trait variables, or specific incidences during the study period) and rendering obsolete the inclusion of further Level-2 variables. All continuous Level-1 predictors were group-mean centered, and Level-2 predictors (aggregate daily ratings) were grand mean-centered. As a result, the coefficients of Level-1 predictors can be interpreted as pure within-person effects (i.e., daily deviations from the person mean), whereas coefficients of Level-2 predictors represent pure between-person effects (Wickham & Knee, 2013).

[19] Because this procedure results in the loss of some data, decreasing the number of analyzed observations from 2124 to 2015, we also ran the same analyses without the time-lagged variable, instead modeling a first-order autoregressive residual structure (for a discussion of both methods, see Wickham & Knee, 2013). Doing so did not change the nature of the results, except for the effect of goal ambivalence on approach-oriented coping, which in this case was even further from reaching statistical significance ($B = 0.14$, $SE = 0.10$, $p = .161$, cf. Table 5).

Table 5

Results of hierarchical linear models predicting daily positive emotions, negative activation, avoidance- and approach-oriented coping in Study 2

	Positive emotions		Negative activation		Avoidance-oriented coping		Approach-oriented coping	
Coefficient	*B (SE)*	*p*	*B (SE)*	*p*	*B (SE)*	*p*	*B (SE)*	*p*
Intercept	5.58 (0.04)	< .001	2.83 (0.03)	< .001	0.87 (0.04)	< .001	4.02 (0.09)	< .001
Time[a]	0.00 (0.00)	.479	0.00 (0.00)	.808	-0.01 (0.00)	< .001	-0.00 (0.01)	.873
Weekend[b]	-0.10 (0.04)	.009	0.10 (0.04)	.007	0.04 (0.04)	.312	-0.22 (0.10)	.021
Outcome, previous day	0.14 (0.02)	< .001	0.06 (0.02)	.001	0.07 (0.02)	< .001	0.08 (0.02)	< .001
Outcome, person mean	1.00 (0.02)	< .001	1.00 (0.02)	< .001	0.98 (0.02)	< .001	1.00 (0.02)	< .001
Day-specific pregnancy hassles	-0.07 (0.01)	< .001	0.05 (0.01)	< .001	0.07 (0.01)	< .001	0.07 (0.02)	< .001
Day-specific pregnancy uplifts	0.04 (0.00)	< .001	-0.03 (0.00)	< .001	-0.02 (0.00)	< .001	0.13 (0.01)	< .001
Day-specific overall stress	-0.21 (0.01)	< .001	0.25 (0.01)	< .001	0.07 (0.01)	< .001	-0.09 (0.03)	.012
Day-specific goal ambivalence	-0.20 (0.04)	< .001	0.14 (0.04)	.001	0.32 (0.05)	< .001	0.18 (0.11)	.086

Note. [a]centered at first measurement occasion. [b]1 = weekend day, 0 = weekday.

Results of these models predicting previous-to-current-day changes in positive emotions, negative activation, avoidance- and approach-oriented coping are shown in Table 5. Daily fluctuations in goal ambivalence significantly contributed to the explanation of daily changes in positive emotions, negative activation, and avoidance-oriented coping over and above the effects of the other predictors. In predicting daily approach-oriented coping, goal ambivalence exhibited a statistical tendency toward a positive effect.[20] Comparing each of the models with a null model that included only a randomly varying intercept suggested that our set of predictors reduced residual variance by 54% in positive emotions, by 52% in negative activation, by 48% in avoidance-oriented coping, and by 44% in approach-oriented coping (Nagelkerke, 1991). However, such *Pseudo-*R^2s may reflect inaccurate estimates of effect sizes in the context of hierarchical linear modeling and should be interpreted with caution (Nezlek, 2012).

[20] The reader may note the counterintuitive direction of the weekend effects in the reported models. In fact, the weekend variable exhibited a statistically significant positive effect on positive emotions, and non-zero negative effects on negative activation and avoidance-oriented coping when entered into the null model as a single predictor, with the changes in magnitude and sign of the effects in the final models likely due to a confound with the extent of daily hassles, uplifts, and stress levels on weekends vs. weekdays.

Summary. In the cross-sectional part of Study 2, we were able to closely replicate the pattern of hypothesized correlations of Study 1, and further complete it by finding the negative correlation between goal ambivalence and life satisfaction, which had not been present in the first sample. More importantly, the results of the daily diary analyses provide strong support for our assumption that the effects of goal ambivalence on well-being, stress, and coping strategies transfer from the between- to the within-person level; they also validate the non-redundancy of goal ambivalence's effects with those of pregnancy-specific daily stressful and uplifting experiences as well overall daily stress load.

General Discussion

Our objective in conducting the present research was to promote goal ambivalence as a relevant predictor of well-being, stress, and coping in pregnant women. In two studies, we found consistent associations of experienced ambivalence about the decision to have a child with concurrent depressive symptoms, perceived stress, avoidance-oriented coping, and coping self-efficacy. Goal ambivalence was also substantially negatively correlated with life satisfaction in one of the two samples. Moreover, prenatal goal ambivalence predicted changes in life satisfaction, depressive symptoms, perceived stress, and coping self-efficacy postpartum. Study 2 additionally revealed within-person effects of daily fluctuations in goal ambivalence on day-to-day changes in positive emotions, negative activation, and use of avoidant coping strategies. Both the prospective and the daily effects of goal ambivalence prevailed when controlling for pregnancy-specific distress. In our view, these findings justify the acknowledgement of goal ambivalence as a non-negligible factor in explaining the psychological processes during pregnancy.

Ambivalence During Pregnancy: The Value and Validity of a Goal Striving Perspective

On a more conceptual level, the present research supports the utility of the application of goal ambivalence to the pregnancy context. Our conceptualization of the ambivalence construct

differs somewhat from the use of the term in the broader reproductive research field. Indeed, investigations of pregnancy ambivalence have recently gained considerable traction, but have predominantly been concerned with ambivalence toward a *potential* pregnancy in non-pregnant, often adolescent, populations with no explicit pregnancy intentions, focusing on outcomes such as contraceptive behavior or unplanned pregnancies (Brückner, Martin, & Bearman, 2004; Campo, Askelson, Spies, & Losch, 2012; Chatman & Flynn, 2005; Francis, Malbon, Braun-Courville, Lourdes, & Santelli, 2014; W. B. Miller, Barber, & Gatny, 2013; Schwarz, Lohr, Gold, & Gerbert, 2007; Yoo, Guzzo, & Hayford, 2014). The few reports of ambivalence during pregnancy did either not specify whether pregnancies were planned or not (Bernazzani, Saucier, David, & Borgeat, 1997; Wikman, Jacobsson, Joelsson, & von Schoultz, 1993) or used a retrospective measure of ambivalence regarding pregnancy intention (Mohllajee & Curtis, 2007)[21]. In addition, the assessment of ambivalence toward pregnancy is often ambiguous and not always backed by a sound theoretical underpinning (W. B. Miller et al., 2013). In contrast, our investigation of ambivalence toward a planned pregnancy was firmly rooted in existing research on ambivalence and personal goal striving. The associations with life satisfaction, positive emotions, depressive symptoms, and perceived stress converge with previously found adverse effects of goal ambivalence on these variables in other contexts (Emmons & King, 1988; Kelly et al., 2011; Koletzko et al., 2015), demonstrating that they generalize to the parenthood goal.

A novel question posed by this research concerned the relations of goal ambivalence with coping strategies and self-efficacy. As expected, goal ambivalence was associated with stronger reliance on behaviors aimed at avoiding confrontation with the challenges of pregnancy. As pointed out in the introduction, from a pregnant woman's standpoint, we consider this a logical response to an approach-avoidance conflict that cannot be solved behaviorally. Whether it is also

[21] Notably, our notion of goal ambivalence during pregnancy is also distinct from ambivalence regarding an abortion (Husfeldt, Hansen, Lyngberg, Nøddebo, & Petersson, 1995; Kero & Lalos, 2000), which typically results from the occurrence of an unplanned pregnancy (Santelli et al., 2003).

functional is a separate issue: It has been proposed that emotion-focused coping strategies (including avoidance) are adaptive in dealing with uncontrollable stressors, but this *goodness-of-fit* hypothesis has not received unequivocal support (Folkman & Moskowitz, 2004; Park et al., 2004). In the context of pregnancy, empirical studies have generally associated avoidant coping with adverse consequences such as negative affective states, increased risk of preterm delivery and a range of other negative psychological and physical maternal health outcomes (Guardino & Dunkel Schetter, 2014). The associations between avoidance-oriented coping and the well-being and stress measures appear to suggest that our two studies are no exception to this rule, though they were not designed to test it directly.

Avoidance-oriented coping was also negatively related with coping self-efficacy in both samples, indicating that it may serve as a potential mechanism of the consistent negative relationship we found between ambivalence and self-efficacy: Perhaps it is because they avoid engaging with the challenges of pregnancy, that ambivalent women are less likely to develop optimistic beliefs about their ability to deal with the transition to parenthood. Again, our studies were not designed to examine such causal chains. However, the association of ambivalence with coping self-efficacy, and especially its prospective prediction, is an important result in itself, in that it suggests that goal ambivalence negatively affects cognitive self-expectations that have time and again proven critical for effective action regulation in goal striving (Schwarzer & Renner, 2000).

Our findings regarding the association of goal ambivalence with approach-oriented coping warrant further examination. It should be kept in mind that we had no clear-cut hypothesis regarding this relationship. Indeed, we found inconsistent results across analyses, ranging from small positive, over zero, to slightly negative effects. This quasi-zero effect is consistent with the notion that the "default" strategy in goal pursuit is approach, and approach-avoidance conflict in the form goal ambivalence is thus likely a function of increasing avoidance tendencies rather than changes in approach tendencies. Moreover, it concurs with the findings of a previous study in which ambivalence about the decision to become a parent was associated

with avoidant forms of coping, but not with support seeking (Pinquart et al., 2008). Though it suggests the presence of moderators and perhaps calls for further differentiation of approach-oriented coping, we believe that the null effect of goal ambivalence on this form of coping is a strength as much a weakness of the present research. In providing evidence for the discriminant validity of our ambivalence measure, it rules out the possibility of artefacts, such as common method bias or response tendencies as an explanation for our results. This becomes evident not only when comparing the associations of goal ambivalence to those with the remaining outcome measures, but also in comparison to the measures of other pregnancy-specific concerns we included. Pregnancy-specific stress and daily hassles were reliably associated with approach-oriented coping between persons in both studies, and within persons in Study 2, indicating that the experience of other pregnancy-specific stressors, which are not due to goal-related conflict, might indeed stimulate engagement in approach-oriented strategies.

The prospective effects of goal ambivalence in Study 1 provide another important demonstration of construct validity. Earlier assessments of goal ambivalence have operationalized it as anticipated unhappiness with regard to successful goal attainment (Emmons & King, 1988). Our measure of experienced conflicting reactions in fact predicted a *decrease* in life satisfaction and coping self-efficacy, and an *increase* in depressive symptoms and perceived stress postpartum, signifying that reaching the goal did not alleviate tension, but actually resulted in even less happiness and confidence in adapting to the situation. Again, these effects are particularly meaningful in comparison to those of pregnancy-specific stress, which – although strongly related to the outcome variables in the pregnancy questionnaires – did not predict any of the postpartum measures, suggesting that its appraisal is more clearly bounded to the demands and uncertainties of pregnancy. In light of the relevance of postnatal maternal health for important developmental factors such as mother-child-interaction and attachment (Seyfried & Marcus, 2003; Taylor, Atkins, Kumar, Adams, & Glover, 2005), and the fact that goal ambivalence also explained variance over and above the effects of neuroticism, there is also an obvious added

value to these findings from a practical perspective (e.g., including goal ambivalence in addition to other risk factors in screenings of pregnant women).

Study 2 complemented our investigation with a daily diary and revealed that, like other forms of motivational conflict such as self-control and inter-goal conflicts (Hofmann, Baumeister, Förster, & Vohs, 2012; Riediger & Freund, 2004), goal ambivalence fluctuated across time and predicted momentary well-being and self-reported behavioral reactions within persons. It should be noted once more that we found substantial within-person effects on positive emotions, negative activation, and avoidant coping even when holding constant several other sources of variance in these variables. In sum, the results of the present studies speak in favor of goal ambivalence as a valid, reliable, and unique predictor of important maternal health outcomes. More generally, the findings also substantiate the important role of goal ambivalence in the regulation of emotion and action during goal striving.

Limitations of the Present Research

This research offers a first starting point for future investigations on goal ambivalence during pregnancy. In our effort to recruit women with planned pregnancies, we relied on rather selective samples of presumably highly motivated and information-seeking individuals. Reporting high education levels and stable relationships, these women likely represent a population with ideal psychosocial preconditions for a pregnancy and low risk for adverse health outcomes (Dunkel Schetter, 2011; Lobel et al., 2008). The low-to-moderate level of goal ambivalence we found in the present samples may thus be an underestimate of the actual prevalence among women with planned pregnancies. Despite the possibility of restricted variance in goal ambivalence, as well as outcomes such as well-being and avoidance coping, we nonetheless found substantial and robust effects. The moderate sample sizes, and considerable postpartum attrition in Study 1, however, further limit the generalizability of our findings. Future research should

validate our findings in larger and more representative samples, and perhaps also compare the extent and effects of ambivalence in women with planned vs. unplanned pregnancies.

In terms of research questions, we already alluded to the fact that the present research placed a somewhat narrow focus on the assumed implications of goal ambivalence for well-being, stress, and coping, without considering the complexity of possible interrelations among these variables and their mechanisms. The correlational nature of the data renders our observations somewhat descriptive and clearly prohibits any causal inferences. In a related vein, the current investigation remains silent as to possible antecedents of goal ambivalence during pregnancy. The determinants of conflicted reactions toward the decision to have a child may be as varied as the reasons for having children and the combinations of subjective pros and cons. Future work could fruitfully combine qualitative investigations into such individual motivational antecedents with quantitative tests of possibly differential mediation of these predictors on specific outcomes through experienced goal ambivalence.

Contributions to Psychological Science on Pregnancy

Though open questions remain, this paper can inform research on the psychology of pregnancy in several ways. In their review of the literature on coping during pregnancy, Guardino and Dunkel Schetter (2014) put forward six recommendations for future studies, namely: (a) the formulation of a priori hypotheses, (b) the use of ecological momentary assessment or daily process designs, (c) the focus on coping skills and resources, (d) attention to context, (e) consideration of the specifics of pregnancy, and (f) study designs that yield concrete implications for intervention. The current research addresses these points, which we believe are at least in part extensible to other areas of pregnancy research, by (a) using a goal striving framework to derive concrete predictions, (b) examining within-person changes in a daily diary study, (c) including a measure of coping self-efficacy as a goal-relevant resource, (d) applying context-specific measures of coping strategies, coping self-efficacy, distress, and daily events, alongside general measures of well-being and stress,

(e) considering the unique motivational characteristics of planned pregnancies, and accounting for pregnancy-related factors, and (f) singularizing goal ambivalence as a motivational source of discomfort that is easy to assess, and can perhaps be alleviated through interventions. Regarding the latter point, the daily fluctuations of ambivalence apparent in our data, prior evidence for the malleability of ambivalence, as well as therapeutic techniques capitalizing on ambivalence induction and resolution (W. R. Miller & Rollnick, 1991), suggest that targeting the subjective experience of goal ambivalence may provide a promising route to reducing overall stress and fostering maternal health and well-being. Given that previously identified factors such as life events, personality traits, or socioeconomic status are difficult to influence in the short term, and the evidence on effective maternal mental health and well-being interventions is insufficient (Alderdice, McNeill, & Lynn, 2013; Dennis, Ross, & Grigoriadis, 2007), we hope that future research will be able to expand on our findings to gain further theoretically integrated and practically useful insight into the psychological – and in particular, motivational – processes of pregnancy.

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DISCUSSION AND OUTLOOK

The present work was aimed at bringing the heretofore only sporadically examined phenomenon of ambivalence toward a personal goal back to the spotlight of research attention. This was implemented by devising a novel measure of the construct and testing its utility in several studies of personal goal pursuit. Following a brief summary and evaluation of the empirical findings in relation to the thesis' main objectives, the greater part of the final chapter will be devoted to open questions for future research on goal ambivalence.

Summary of the Present Findings

Recall that the two overarching objectives of this work were to (a) provide reliable and valid measurement of goal ambivalence and (b) provide evidence for the theoretical, empirical, and potentially practical relevance of the construct. General definitions of ambivalence (Bleuler, 1914; Sincoff, 1990) as well as previous research on personal striving ambivalence (Emmons, 1986; Emmons & King, 1988), approach-avoidance conflict (Lewin, 1935; N. E. Miller, 1944) and attitudinal ambivalence (e.g., Thompson, Zanna, & Griffin, 1995; Priester & Petty, 1996) set the foundation for the conceptualization of goal ambivalence and the design of the 8-item scale to measure it.

Evidence for reliable measurement. Across all studies, the internal consistency of the goal ambivalence scale was high and it yielded sufficient variability in goal ambivalence to explain non-zero proportions of variance in the outcome measures. With few exceptions (e.g., failure to predict changes in affect in Study 3 of Part I, differences in determination in Study 1 of Part II, and concurrent life satisfaction in Study 1 of Part III), the relations were replicable and robust against the inclusion of baseline levels of well-being (Parts I and III), dispositional differences in regulatory mode (Part I) and neuroticism (Part III), goal-specific value and expectancy (Part II), and situation-specific stressors (Part III). It thus appears that the goal ambivalence measure

reliably captures an experience that is associated with the self-regulation, health, and well-being criteria defined in the present work.

Evidence for construct validity. The question whether this experience corresponds to the theoretical conceptualization that the measure was based on was addressed by testing to what extent the scale yielded converging findings with prior operationalizations of (a) striving ambivalence, (b) approach-avoidance conflict, and (c) attitudinal ambivalence. In line with the general contention that ambivalence toward a personal goal should be aversive, *personal striving ambivalence* has been related to measures of affect, anxiety, depression, and general well-being both concurrently and longitudinally in previous research (Emmons, 1986; Emmons & King, 1988; Kelly, Mansell, & Wood, 2011). These findings were replicated in the present work with the cross-sectional and prospective relations to affect and life satisfaction in Part I, and affect, life satisfaction, perceived stress and depressive symptoms in Part III. Notably, goal ambivalence measured during goal pursuit prospectively predicted lower well-being at goal attainment in Part III, directly mirroring the logic underlying Emmons' measure of anticipated negative affect. Concurring with the notion that goal ambivalence inhibits goal-related action (Emmons & King, 1988), it was further negatively related to perceptions of goal progress in Part I.

Failure to persistently approach a goal is also a hallmark feature of *approach-avoidance conflict* (Lewin, 1935; N. E. Miller, 1944). The studies reported in Part II supported the hypothesis that the experience of goal ambivalence leads to lower commitment with increasing proximity to a goal. Such negative gradients of commitment arguably indicate that ambivalent goals are associated with negative valence which looms larger closer to the goal, and that hence the experience of goal ambivalence conceptually corresponds to an approach-avoidance conflict toward the goal.

The assumption that co-occurring positive and negative goal valence underlies the experience of goal ambivalence was tested more directly in Part I. Research on *attitudinal ambivalence* has repeatedly demonstrated that the meta-attitudinal experience of ambivalence

toward an object is at least in part determined by simultaneous positive and negative evaluations (Newby-Clark, McGregor, & Zanna, 2002; Priester & Petty, 1996; Thompson et al., 1995). The relations between the experienced goal ambivalence measure and a structural measure of goal ambivalence in Studies 1 and 2 of Part I were close in size to those previously found for attitudes, corroborating the validity of the goal ambivalence scale as an ambivalent attitude toward the goal. An additional observation regarding potential parallels between attitudinal and goal ambivalence emerged from Part II. Temporal instability and ambivalence have both been named as indicators of low attitude strength, and ambivalent attitudes have accordingly been found to be less stable in some studies (Petty & Krosnick, 1995; Jonas et al. 2000; Conner & Sparks, 2002). That goal ambivalence and the instability of self-reported goal commitment were clearly related in Part II suggests that conflicting goal evaluations may indeed operate similarly to conflicting evaluations of other objects in some respects. In sum, the present studies provided some initial evidence that the goal ambivalence scale validly captures the construct it is presumed to reflect.

Evidence for added value. Beyond converging findings, the present work also sought to make novel contributions to research on the self-regulation of goal striving as well as health and well-being. In Part I, goal ambivalence was proposed as a mediator in the goal self-concordance model (Sheldon & Elliot, 1999). The experience of goal-related conflict is implied in prominent theorizing on the autonomous and controlled bases of goal motivation, but has not yet been condensed into empirical investigation. The fact that goal ambivalence fully accounted for the effects of goal self-concordance in all three studies clearly indicates the utility of theoretically integrating it into the self-concordance model, and empirically including it in studies of personal goal striving.

Part II touched on topics of self-regulation and the course of motivation across goal pursuit. Classic research on goal gradients (Hull, 1932) has been extended over time to include various explanations and boundary conditions (see Touré-Tillery & Fishbach, 2011). Approach-avoidance conflict is likewise a classic motivational concept, yet it has not been subject to the

same kind of conceptual development and is still often regarded a behavioral phenomenon (cf. Jonas et al., 2000). The present work transformed the operationalization of approach-avoidance conflict into one that is more compatible with cognitive conceptualizations of goals. It further explicated theoretical connections to current accounts of psychological distance and self-regulation. The results of the studies reported in Part II demonstrate that goal ambivalence is a factor well worth considering in the dynamic self-regulation of personal goal pursuit.

Finally, Part III capitalized on the notion of goal-related conflict as an aversive and stressful experience to argue for a motivational perspective on well-being, stress, and coping during pregnancy. Apart from rare exceptions (e.g., Salmela-Aro, Nurmi, Saisto, & Halmesmäki, 2000; see also J. Heckhausen, Wrosch, & Fleeson, 2001), a personal goal striving approach has not been applied to the field of pregnancy research, which is traditionally carried out by clinical psychologists or medical researchers. The findings of the two studies presented in Part II suggest that the theoretical premises and empirical implications of goal-related conflict can be generalized to this entirely different context. Moreover, in these studies goal ambivalence contributed to the between- and within-person prediction of outcomes that are either viewed as dysfunctional in themselves or known to entail undesirable health-related consequences. Overall, it thus appears that goal ambivalence has implications for self-regulation, health, and well-being that render it a relevant addition to both basic and applied fields of psychological research.

Questions for Future Research

Every initial investigation of a construct is inherently limited and often raises more questions than it attempts to answer. In the subsequent sections, a number of areas for further research are sketched out, thereby addressing some shortcomings of the present work.

How Does Goal Ambivalence Relate to Other Forms of Goal-Related Conflict?

Although the measure of goal ambivalence appeared to capture the experience of goal-related conflict in the studies reported, the present research did not address the question to what extent this conflict and its implications relate to, and differ from, other forms of motivational conflict during personal goal pursuit. Definitional issues and possible relations to inter-goal conflict, self-control conflict, and action crisis, and once more to cognitive dissonance, are discussed in the following.

Inter-goal conflict. Whereas goal ambivalence describes an approach-avoidance conflict toward a single, both positively and negatively valenced goal, inter-goal conflict corresponds to another classic form of motivational conflict, namely, approach-approach conflict between two positively valenced goals (Lewin, 1935; N. E. Miller, 1944). Although approach-approach conflict was described in classic conflict theory as an easily solvable situation, numerous studies have shown that like goal ambivalence, inter-goal conflict is negatively related to subjective well-being (Emmons, King, & Sheldon, 1993; Michalak, Heidenreich, & Hoyer, 2004; Riediger, 2007).[22] Although within-goal and inter-goal conflict are clearly distinct from a definitional point of view, it may well be that they share a certain degree of overlap in the everyday situation of multiple personal goal pursuit. It is likely that goal ambivalence is a consequence of inter-goal conflict, as goals that conflict with others for limited resources may acquire negative valence. For instance, if a parent is constantly struggling to balance between work and family goals, the once exclusively

[22] This contradiction may be solved by differentiating the choice between two possible goal pursuits from the continued simultaneous pursuit of two incompatible goals.

desirable goals of pursuing a promotion, and having another child, may both become increasingly ambi-valenced over time.[23] Previous research on personal strivings is equivocal regarding the nature of the relation between striving ambivalence and between-striving conflict. Studies have evidenced a moderately positive cross-sectional relationship between the two constructs, as well as some instances of differential validity in the prediction of self-regulatory and well-being outcomes (Emmons, 1986; Emmons & King, 1988; Thomsen, Tønnesvang, Schnieber, & Olesen, 2011). Furthermore, one study found an interaction between striving ambivalence and between-striving conflict on depression, such that ambivalence predicted depression scores only at low levels of conflict (Kelly, Mansell, et al., 2011). This finding was interpreted from an attributional perspective to suggest that striving ambivalence may be an indicator of higher-level, potentially unconscious conflict that leads to lower well-being when it cannot be explained by the presence of conflicting strivings. However, no significant interaction effects were found on measures of stress or anxiety, and it does not appear that this effect has since been replicated.

In order to clarify the relation between the two forms of conflict, future research should test theoretically deducted hypotheses to differentiate the circumstances under which goal ambivalence may act as a mediator of inter-goal conflict effects, from those under which the two forms of conflict have differential implications. For instance, prior research has shown that it likely is not so much interference between goals rather than a lack of inter-goal facilitation that impairs goal-directed action (Riediger, 2007). On the other hand, an increase in avoidance relative to approach tendencies toward a goal, resulting in goal ambivalence, should in theory always lead to detriments in the regulation of goal-directed action (cf. N. E. Miller, 1944). As for well-being consequences, it has been proposed that inter-goal conflict leads to lower expectations of goal attainment, which in turn shield individuals from the negative affective consequences of failure (Kehr, 2003). On the other hand, goal ambivalence is explicitly expected to result in lower

[23] In fact, such a situation may come to resemble a *double approach-avoidance conflict* (N. E. Miller, 1944) between two competing goals with both positive and negative valence.

happiness and well-being at goal attainment due to the partially negative value of the goal (Emmons & King, 1988; see Part III of this work). Whether expectations of differential effects and mechanisms for inter-goal and within-goal conflict are warranted needs to be confirmed by future research.

Self-control conflict. Self-control conflicts (also want/should conflicts, cf. Milkman, Rogers, & Bazerman, 2008; Riediger & Freund, 2008) can be categorized as specific instances of goal interference. Whereas inter-goal conflicts between goals at the same level of centrality may persist as long as goal pursuit continues, self-control conflict is a transient phenomenon owed to the lure of short-term temptations competing with the longer-term pursuit of higher-level goals (Fishbach & Ferguson, 2007; Hofmann, Friese, & Strack, 2009; Mischel, Shoda, & Rodriguez, 1989; Myrseth & Fishbach, 2009). A prototypical example is the conflict between the short-term temptation of indulging in a delicious chocolate cake vs. the long-term goal of reaching a healthier body weight. In such a situation of self-control conflict, both the short-term indulgence goal and the long-term weight loss goal may be perceived as ambivalent. Indeed, relatively high levels of ambivalent attitudes have been reported toward both health-protective behaviors that entail a trade-off between short-term unpleasantness and long-term positive consequences, and health-risking behaviors that are associated with short-term pleasantness and long-term negative outcomes (Conner & Sparks, 2002). Ambivalence toward a focal long-term personal goal could hence be *caused* by a conflict between delaying gratification and giving in to situational distractions or impulses. On the other hand, counteractive self-control and goal shielding processes (Fishbach & Trope, 2008; Shah, Friedman, & Kruglanski, 2002) may be impaired for already ambivalent goals, so that individuals are more receptive to situational cues and vulnerable to the distraction from temptations that then *lead to* the experience of self-control conflict (cf. Stroebe, Mensink, Aarts, Schut, & Kruglanski, 2008). Regardless of the direction of causality, a positive relationship between goal ambivalence and self-control conflict is to be expected.

An interesting question arises from potential effects of construal level (Trope & Liberman, 2010) on conflict resolution. Research has shown that more abstract high-level mental construal of self-control conflicts leads people to act in accordance with their long-term goals and thus promotes better self-control (Fujita & Carnevale, 2012; Fujita, 2008; Mischel et al., 1989; Rogers & Bazerman, 2008). Although the mechanisms that produce this effect are not fully understood, it is likely owed to changes in evaluations and cognitive associations that reduce the strength of the conflict. Recall that in Part II of the present work, we found that at higher psychological distance to the goal (i.e., higher construal level), goal ambivalence exerted less of an influence on goal commitment. Although we did not test the effect of goal proximity on ambivalence itself, it was presumed that a heightened salience of negative relative to positive aspects and thus a more intense experience of conflict drove the effect. Thus, higher levels of construal might lead to less perceived motivational conflict and thus stronger commitment to the focal goal in the case of both self-control conflict and goal ambivalence. In situations of self-control conflict, it seems that abstract construal in terms of more central features should always lead to behavior in line with the focal goal, because this goal is of higher centrality compared to the short-term temptation goal. However, an alternative scenario is conceivable for the interaction between goal ambivalence and construal level. In the most extreme case, an approach-avoidance conflict constitutes a "stable equilibrium" (N. E. Miller, 1994, p. 432) of equally strong approach and avoidance tendencies. Hence, both increasing approach (i.e., commitment) and increasing avoidance (i.e., disengagement) are equivalent routes to escape the state of tension. Due to the inherent asymmetry of approach and avoidance tendencies in personal goal pursuit, most of the participants in the present studies, who were still in the process of pursuing their goals, did likely not experience strong enough avoidance tendencies to reach such stable equilibria. However, if goal ambivalence passes a certain threshold, thinking at a more abstract level about the essence of one's higher-level goals and values, that is, about "what one really wants" could also lead to discontinuation of goal pursuit, and thus a decline in commitment at

higher rather than lower construal levels. Future research may wish to examine such differential interaction effects.

Action crisis. Of the three forms of goal-related conflict, the recently introduced action crisis is perhaps most conceptually similar to goal ambivalence. Brandstätter and Schüler (2013) defined an action crisis as "the phase in which the individual has already invested a great deal into his/her goal, encounters recurring difficulties, and finally is caught between further goal pursuit and disengagement." (p. 544), and hence, likely a conflict between approach and avoidance tendencies toward the goal.[24] However, three aspects of this definition set the action crisis construct apart from goal ambivalence as it is conceptualized in the present work. First, an action crisis is assumed to arise from repeated setbacks, i.e., as a function of changes in the feasibility of goal attainment. In contrast, this is not a prerequisite for goal ambivalence to occur, which may instead be determined by perceptions of mixed goal desirability alone, irrespective of feasibility considerations. Second, an action crisis is conceptualized as a specific and finite *phase* in goal pursuit, whereas no such assumption is made for goal ambivalence. Individual differences in the perception of goal ambivalence may prevail throughout the entire process of goal pursuit from goal setting to attainment, or alternatively wax and wane depending on external influences (see discussion of changes in goal ambivalence below). Third, an individual in an action crisis is assumed to explicitly debate between persistence and disengagement (and as such experience the abovementioned state of stable equilibrium). On the contrary, moderate levels of goal ambivalence may exist even for extended periods of time without necessarily calling further goal pursuit into question. Moreover, with regard to measurement, the goal ambivalence scale used in the present work focuses on conflicting appraisals of the goal, whereas the Action Crisis Scale (ACRISS; Brandstätter, Herrmann, & Schüler, 2013) also encompasses cognitive and self-regulatory implications of motivational conflict such as rumination or procrastination. In essence,

[24] Framed differently, being torn between the costs of continuing and the (sunk) costs of giving up, can also be seen as an example of another classic form of conflict, an avoidance-avoidance conflict (Brandstätter & Schüler, 2013).

one could say that of the two constructs, goal ambivalence is perhaps the broader one that captures more facets of goal-related conflict. Nonetheless, both constructs are in part conceptually – and most likely, empirically – redundant. From a process perspective, the experience of goal ambivalence may well be conceived a precursor of an action crisis. However, causal relations between the two constructs, and the differential validity of the ACRISS and goal ambivalence scales remain to be empirically tested.

Cognitive dissonance. Although cognitive dissonance is not technically a form of conflict regarding a personal goal, speculations were already put forward in the introduction regarding possible parallels with goal ambivalence. Further corroborating such parallels, the results presented in Part II appear to echo the findings of one study which found that the dissonance-induced post-decisional spreading of evaluations between chosen vs. rejected alternatives appears to be stronger at the beginning of a course of action, when the decision has just been made, and decreases during its implementation. Vroom and Deci (1971) followed up on business school graduates one year and three and a half years after their organizational entry. The reported attractiveness of the chosen organization and perceived instrumentality of the job for the attainment of personal goals decreased markedly over time. This was especially true for those who had shown stronger post-decisional dissonance directly after their decision, as indicated by higher attractiveness and instrumentality ratings. The authors implied from these results that the suppression of post-decisional dissonance is a transient phenomenon that fades upon implementation of the goal, when new and potentially disillusioning information is obtained. However, as in most studies on post-decisional dissonance, the experience of dissonance was not directly measured. Even though the studies in Part II of the present work focused on an increasingly imminent goal rather than a fading decision to predict a decline in commitment, the pursuit of a goal evidently begins with a personal decision that may induce dissonance from forsaken alternatives. It seems worthwhile to integrate research on ambivalence and dissonance by including the goal ambivalence measure in studies using classical cognitive dissonance

paradigms, and in particular, by applying it to test the assumptions of the action-based model of dissonance (Harmon-Jones, Amodio, & Harmon-Jones, 2009).

To summarize, it appears that at the definitional level, different forms of motivational conflict (as well as cognitive inconsistency) can be differentiated from goal ambivalence. However, if goal ambivalence is to prevail as a relevant variable for the study of personal goals, it needs to be proven empirically that it adds value beyond established forms of goal-related conflict.

What is the Best Measurement Approach to Goal Ambivalence?

In the present work, the hypotheses concerning the implications of goal ambivalence were closely intertwined with questions concerning the adequacy of the measure designed to assess it. The latter in turn hinged on the conceptualization of goal ambivalence as the subjective perception of consciously represented evaluative conflict. Although decisions regarding definition and measurement were necessary to limit the scope of the present work, concerns may be raised that these decisions precluded the investigation of the full range of possible ambivalent reactions toward a goal.

First, even though considered at times the "gold standard" (Thompson et al., 1995, p. 374) of ambivalence measurement, it is clear that meta-attitudinal measures of evaluative conflict as the one we used do not convey the precise relation of positive to negative evaluations. We used a *structural measure* of goal ambivalence in Part I and found that it correlated with our meta-attitudinal measure of experienced ambivalence as expected and in accordance with the attitude literature. However, the correlations were far from perfect, suggesting that the two operationalizations at least measure different aspects of the same construct, if not different constructs. Especially in light of the fact that goal ambivalence occurs in relation to a default approach tendency, it would be interesting to further examine how overall appraisals of conflict relate to its positive and negative evaluative bases. Ullrich and colleagues (Ullrich, 2012; Ullrich,

Schermelleh-Engel, & Böttcher, 2008) have proposed a *multivariate approach* to examining the consequences of attitudinal ambivalence, criticizing that the commonly applied formula-based measures confound the influences of independent positive and negative components and may lead to statistical artifacts. Supplementing the measurement and validation of goal ambivalence with this approach would provide valuable insights into the structural properties of goal ambivalence and the ways in which it might differ from ambivalence toward other objects.

Second, the measure used in the present research was based on the premise that the experience of ambivalence can be consciously reflected and reported on. However, ambivalence may be unconscious in some instances (Sincoff, 1990). If the respective positive and negative components are subject to awareness, but not simultaneously accessible and sufficiently salient to enable integration into the experience of ambivalence, then separate assessment of the components may provide more valid assessment (Jonas et al., 2000). But it is also possible that individuals are not aware of the extent of positive and negative evaluations themselves. In recent years, attitude research has seen a surge of interest in so-called implicit measures of social cognition (see Petty, Fazio, & Briñol, 2009), which are argued – albeit with some controversy – to tap into unconscious processes. These measures have been applied to the assessment of ambivalence, for instance by operationalizing *implicit ambivalence* indirectly as the discrepancy between explicit and implicit evaluations (i.e., response latencies) or as the equivalence of positive and negative implicit evaluations, or more directly as scores on an implicit association test (Greenwald, McGhee, & Schwartz, 1998) with "confidence" vs. "doubt" categories (de Liver, van der Pligt, & Wigboldus, 2007; Mikulincer, Shaver, Bar-On, & Ein-Dor, 2010; Newby-Clark et al., 2002; Petty, Tormala, Briñol, & Jarvis, 2006; Rydell, McConnell, & Mackie, 2008; see also Gawronski & Strack, 2004, for an examination of effects of cognitive dissonance induction on implicit-explicit attitude discrepancy). Although measures and explanations vary, it can generally be concluded from these studies that implicit and explicit measures – just like meta-attitudinal vs. structural measures – capture different facets of ambivalence.

The reaction times constituting responses to implicit measures are an instance of *objective behavioral indicators* from which approach-avoidance conflict may be inferred. Others include the behavioral markers of hesitancy, tension, vacillation, or complete blocking of behavior proposed by N. E. Miller (1944). In recent studies, examples of such markers can be found in the form of decision duration, physiological arousal, behavioral variance (i.e., inconsistency) and susceptibility to subtle environmental cues as indicators of non-conscious inter-goal conflicts (Kleiman & Hassin, 2011), as well as longer judgment times and greater response error as markers of preference uncertainty caused by within-alternative conflict (G. W. Fischer, Luce, & Jia, 2000; see also Schneider et al., 2013, and Ullrich, 2012, for applications in attitude research). Even though it may be argued that, depending on the definition of ambivalence, these may be seen as consequences rather than indications of goal ambivalence, recording them would certainly allow to capture a broader spectrum of ambivalent responses toward a goal than self-reports of mixed reactions.

Such more objective markers may also be useful because even if individuals are aware of their conflicting reactions, they may not be willing to report on them. Admitting to mixed feelings and undecidedness about the goals one is pursuing does not seem socially desirable in contexts that emphasize "can do" attitudes, where hesitation is looked upon as weakness, and giving up as failure. Reservations to share such mixed feelings might be even stronger for those achievements that are generally considered as privileges or positive incidents, such as a planned pregnancy (cf. Part III of the present work). In line with this view, in Emmons' (1986) factor analysis of personal striving attributes, striving ambivalence loaded (negatively) on the same factor as social desirability.

Although the measurement approach applied to goal ambivalence in the present work appeared valid and useful, it is clearly not the only one. Differences between ambivalence measures have been discussed extensively, but evidence for their convergent or discriminant validity is scarce (Conner & Sparks, 2002; Jonas et al., 2000; Priester & Petty, 1996; Sincoff,

1990). A multi-method approach including (a) meta-attitudinal measures, (b) separate assessment of explicit evaluations, (c) implicit assessment of evaluative reactions, and (d) behavioral indicators of conflict, thus seems most promising to understand the inner workings of the experience of goal ambivalence.

How Prevalent is Goal Ambivalence?

To the extent that different measures capture different facets of goal ambivalence, decisions regarding the inclusiveness of measurement will also affect conclusions regarding the prevalence of ambivalence. At the beginning of the present research stood the question whether goal ambivalence is an experience that actually exists across different personal goals. In the studies conducted, we found sufficient variance in goal ambivalence to respond affirmatively to this question, but low-to-moderate mean scores on the scale we used. Thus, it could be that goal ambivalence generally exists at a low prevalence and intensity. As mentioned above, it could also be that the measure we used does not capture other possible expressions of goal ambivalence. An alternative explanation for low overall levels of goal ambivalence is selective sampling and social desirability, as speculated in discussing the findings of Part III.

The extent of goal ambivalence may further differ for different types of personal goals. For instance, one might hypothesize that ambivalence is not equally prevalent in the pursuit of avoidance vs. approach personal goals (Elliot & Sheldon, 1998), oughts vs. ideals (Higgins, 1987, 1997), goals with extrinsic vs. intrinsic content (Sheldon, Ryan, Deci, & Kasser, 2004), higher-level vs. lower-level goals (Emmons, 1992), or goals across different life domains and content categories (e.g., King & Emmons, 1990). The present studies do not provide the data necessary to draw conclusions regarding the prevalence of goal ambivalence; more representative samples of individuals and personal goals need to be studied in order to answer the question how common the phenomenon of goal ambivalence really is.

How Does Goal Ambivalence Change Over Time?

The prevalence of a construct is easily confounded with its incidence at a given point in time if it is assessed with one-point measurements without considering possible temporal changes. It was not clear from the conceptualization of goal ambivalence as evaluative conflict whether it should be regarded a transient experience or a stable attribute of a personal goal. The present work did not clarify this issue, hardly touching upon the question of change vs. stability of goal ambivalence across the course of goal pursuit. Although several repeated measurements of goal ambivalence were taken in Study 3 of Part I, these were not examined separately but aggregated into a measure of overall goal ambivalence in order to examine between-person relations to goal self-concordance. Despite focusing on changes in motivation across goal pursuit, the studies in Part II did also not investigate such changes in goal ambivalence. Study 2 of Part III did provide some evidence for within-person changes in goal ambivalence, finding that it fluctuated sufficiently from day to day to predict daily fluctuations in other variables. However, changes in goal ambivalence were not of primary interest in this study, and within-person variability was only examined over a short period of three weeks. To what extent and under which circumstances goal ambivalence changes over time thus remains an open question. The question of *how* goal ambivalence changes over time is of course inherently linked to the question of *why* goal ambivalence occurs and develops. For instance, if determined by stable traits, goal ambivalence might prevail as a relatively durable characteristic of the goal, whereas instigation through situational influences might render it a more fleeting experience. Potential determinants of goal ambivalence are proposed as follows.

What Are the Determinants of Goal Ambivalence?

As implied by its title, the present work focused on the assumed consequences of goal ambivalence for self-regulation, health, and well-being and had little to say about possible antecedents. Why could it be that ambivalence toward a personal goal occurs during goal pursuit?

Most evidently, it should be the presence of objective pros and cons concerning either the means or the ends of goal pursuit that lead to ambivalence. For instance, if reaching a source of food at the same time means getting an electric shock (cf. N. E. Miller, 1944), experiencing an approach-avoidance conflict is clearly warranted. Even beyond extrinsic reward and punishment, few things in life are either black or white, and most gains come at a cost of some kind. Such objective pros and cons should precipitate in co-existing positive and negative evaluations, and thus, in structural measures of ambivalence. However, human beings are not rational calculators, and positive and negative aspects may be weighted quite differently from one another depending on the situation (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Eyal, Liberman, Trope, & Walther, 2004; P. Fischer & Greitemeyer, 2010; Taylor & Gollwitzer, 1995). Moreover, as seen above, structural measures do not translate directly into meta-attitudinal judgments of ambivalence, and additional determinants of such meta-attitudinal ambivalence have been identified by previous research (e.g., Newby-Clark et al., 2002; Priester & Petty, 2001; Priester, Petty, & Park, 2007). Goal ambivalence differs from attitudinal ambivalence by its embedment in the process of pursuing a personal goal. Possible determinants are thus categorized in the following into more distal antecedents that are independent of specific goal pursuits (personality) or pertain to goal selection (person-goal fit), and more proximal antecedents during goal pursuit (changes in goal value and expectancy, salience of positive and negative aspects).

Personality. In research approaches to personal goals, these have traditionally been regarded as expressions of personality (see Little, Salmela-Aro & Philipps, 2007). Indicative of this view is the practice of aggregating standardized ratings across individuals' idiographic goals, (e.g., Brunstein, 1993; Sheldon & Elliot, 1999), as it are more the characteristics of an individuals' personal goal system that are of focal interest than the features of a specific goal. In support of this notion, Emmons and King (1988) found high consistency of striving ambivalence ratings across different personal strivings, and relatively stable scores over a one-year period, leading

them to speculate that appraisals of ambivalence might be based on a trait-like propensity to perceive conflict within one's strivings.

In the present studies, we focused on ambivalence toward a single personal goal rather than assessing it for several goals, and thus were not able to test for within-person consistency of ambivalence scores across different personal goals or goal domains. We did, however, include validated measures of personality dispositions in two studies, and found some predictable between-person associations with goal ambivalence. In Study 2 of Part I, goal ambivalence was related to regulatory mode (Kruglanski et al., 2000) dimensions assessment, $r = .19$, and locomotion, $r = -.27$, suggesting that interindividual differences in self-regulatory functions affect the experience of goal ambivalence. In Study 1 of Part III, in line with the notion that emotional instability might in part account for evaluative inconsistency, goal ambivalence was positively related to a measure of neuroticism (Körner et al., 2008), $r = .20$. Yet these correlations were not large in size, and differences in regulatory mode and neuroticism did not explain the predicted effects of goal ambivalence on well-being.

Perhaps other personality traits contribute more strongly to the experience of goal ambivalence, for instance, the general propensity to tolerate inconsistency or duality. Research on attitudes has found a negative relationship between structural ambivalence measures and need for cognition (Cacioppo & Petty, 1982*)*, especially at high levels of attitude involvement (Thompson & Zanna, 1995). However, for individuals with a higher preference for consistency (Cialdini, Trost, & Newsom, 1995), the accessibility of positive and negative attitude bases led to more *subjective* ambivalence in one study (Newby-Clark et al., 2002), and individuals with high need for cognitive closure (Webster & Kruglanski, 1994) indicated more affective ambivalence in an ambivalence-inducing situation in another study (Holbert & Hansen, 2006). Thus, it appears that individuals who experience inconsistency as uncomfortable are more likely to integrate opposing reactions into one-sided evaluations under regular circumstances, but experience more ambivalence when they are confronted with their opposing reactions. On the other hand,

individuals high in dialectical thinking (Peng & Nisbett, 1999), who better tolerate contradictory beliefs, scored higher on a structural measure of mixed emotions toward positive life events in one investigation (Hui, Fok, & Bond, 2009). Considering interindividual characteristics in the form of cultural background and age has revealed that individuals of Asian descent and older adults, who are presumed be more prone to accept duality, feel less discomfort about mixed emotional appeals than their Anglo-American and younger counterparts, which in turn leads to more favorable attitudes toward such messages (Hong & Lee, 2010; Williams & Aaker, 2002).[25] Thus, it appears worthwhile to consider potential differences in the tolerance of conflicting reactions as a possible determinant of goal ambivalence. Harmon-Jones and colleagues (2009) have developed the Dissonance Arousal and Reduction Questionnaire to assess individual differences in the respective cognitive dissonance processes, which might also prove useful in this respect.

Other dispositions might affect goal ambivalence through effects on dealing with the self-regulatory challenges of goal pursuit, similarly to regulatory mode. One trait that has been positively associated with attitudinal ambivalence is personal fear of invalidity (Mikulincer et al., 2010; Thompson & Zanna, 1995), which is characterized by greater sensitivity to potential errors in decision making. Another promising candidate is dispositional action orientation (Kuhl, 1984), which has been negatively related to attitudinal ambivalence (Hänze, 2001) and action crises (Herrmann & Brandstätter, 2013), and positively to cognitive dissonance reduction (Harmon-Jones et al., 2009). Overall, it seems that dispositional interindividual differences likely play a role in the experience of goal ambivalence.

Person-goal fit. Within a person's personal goal system, some personal goals may be perceived with less ambivalence than others because they provide a better fit to the persons'

[25] In accordance with the assumption that higher-level mental construals lead to less experience of conflict, Hong and Lee (2010) found that these difference were partly mediated through more abstract chronic construal levels in older adults and Asian participants.

enduring characteristics or momentary situation. In Part I, we demonstrated that high goal self-concordance (Sheldon & Elliot, 1999), indicating a good fit between personal goals and personal values and interests, was associated with low goal ambivalence. Similar effects could be expected for the degree of fit between individuals' implicit affiliation, achievement, and power motives (McClelland, Koestner, & Weinberger, 1989) and the content of the personal goals they are pursuing. Exploring a possible mediation of implicit motive-goal fit through goal ambivalence would be particularly interesting in light of the distinct affective consequences of motive-congruent vs. –incongruent goal pursuit (e.g., Baumann, Kaschel, & Kuhl, 2005; Brunstein, Schultheiss, & Grässmann, 1998; Pueschel, Schulte, & Michalak, 2011). Another form of possible (mis)fit is interpersonal rather than intrapersonal in nature. When one's own attitudes toward an object are discrepant with those of highly regarded others, the subjective experience of ambivalence toward the object increases beyond the effects of intrapersonal evaluative inconsistency (Priester & Petty, 2001). Thus, one could expect more ambivalence for goals that are set and pursued lacking support from one's social environment. Note that this prediction may in some cases run counter to the relation that we found in Part I of the present work with goal self-concordance, namely, that goals that are pursued without external (social) pressure are associated with less ambivalence. Misfit may further occur between goal demands and personal abilities (e. g., when achievement goals are set that are too difficult) or between goal demands and personal resources (as caused, for example, by inter-goal conflicts). Although these types of person-goal fit differ on many levels, all of them may evoke conflicting reactions toward the goal that contribute to the experience of goal ambivalence.

Changes in value and expectancy. Whereas personality is independent of specific goal pursuits, and bad fit ensues from setting the "wrong" goals, goal ambivalence may also be determined by changes in perceived goal value and expectancy *during* the process of goal pursuit. As the basic components of motivation (Bargh, Gollwitzer, & Oettingen, 2010), both value and expectancy may be involved in the development of approach-avoidance motivational conflict.

For instance, fading dissonance reduction (Vroom & Deci, 1971) could lead to a depreciation of positive value, while setbacks and the realization that a goal is difficult to attain might lower expectancy of goal attainment, both of which would decrease approach relative to avoidance motivation and hence increase goal ambivalence. In the studies reported in Part II, we found correlations of comparable size between goal ambivalence and both goal value (*r* range = -.18 to -.37) and expectancy (*r* range = -.28 and -.34). However, it is not possible to tell from these cross-sectional relations whether goal ambivalence did indeed ensue from negative changes in value or expectancy during goal pursuit. It would be informative to test this hypothesis in future studies, and to determine under which circumstances either of the two components gains more weight in predicting goal ambivalence. Importantly, goal value and expectancy did not account for the focal effects of goal ambivalence on changes in commitment in Part II, indicating that while they may contribute to goal ambivalence, the experience of motivational conflict is a more complex phenomenon than simply experiencing low motivation to attain the goal.

Salience of negative relative to positive aspects. The most direct precursor of experienced goal ambivalence during goal pursuit is not only the presence, but also the simultaneous activation of both positive and negative aspects of pursuing the goal. The experience of attitudinal ambivalence is a function of the simultaneous accessibility of positive and negative attitude components (de Liver et al., 2007; Newby-Clark et al., 2002). Thus, goal ambivalence should be experienced more strongly to the extent that an unfavorable (in the sense of non-zero) relation of negative to positive aspects of goal pursuit becomes momentarily salient. In Part II of the present work, we assumed that increasing proximity to the goal creates such increased salience of conflicting negative relative to dominant positive reactions toward the goal. However, this assumption was not tested directly. Other situations in which positive and negative aspects become simultaneously accessible may include those in which a goal-related choice needs to be made (van Harreveld, van der Pligt, & de Liver, 2009), when one needs to monitor for possible lapses and self-control conflicts (Armitage & Arden, 2007), when difficulties or setbacks

occur (Bongers, Dijksterhuis, & Spears, 2010; Brandstätter & Schüler, 2013), or when one merely anticipates potential negative reactions (Priester et al., 2007; cf. Emmons & King, 1988). Salience of conflicting positive and negative aspects may also be heightened more explicitly by external inductions to deliberate the pros and cons of a course of action (W. R. Miller & Rollnick, 2002; Nenkov & Gollwitzer, 2012).

To conclude, goals may be ambivalent for various reasons. The experience of goal ambivalence is presumably jointly determined by stable personality traits, the setting of goals that provide a better or worse match to the person, as well as through situationally induced changes in value and expectancy and the momentary salience of negative relative to positive aspects during goal pursuit. Of course, the variables mentioned are neither exhaustive nor independent from one another. For instance, personality may find its expression through the selection of goals, and moderate the effect of the simultaneous activation of pros and cons on the experience of conflict. In a similar vein, goals that provide a bad fit to the person may be perceived as increasingly less desirable and attainable over time, and make the person more receptive to negative goal aspects in situations that heighten the salience of pros and cons. As Lewin (1951) famously stated, observable reactions are a function of both the person and their situational environment. It is up to future research to investigate to what extent this truism holds true for the occurrence of goal ambivalence.

What Are the Consequences of Goal Ambivalence?

The present work examined indicators of self-regulation, health, and well-being as assumed consequences of ambivalence. But this examination was limited by the correlational nature of the relationships and the self-report measures applied, precluding causal inferences and possibly rendering the observations subject to common method and other bias. Moreover, the indicators examined represent only a fraction of the potential consequences of goal ambivalence. Below, such potential consequences are organized into health and well-being, information

processing, and action regulation outcomes. Of these, the latter two pertain to goal-specific information and behavior, whereas health and well-being are more general outcomes. However, effects of goal ambivalence on all three are assumed to be mediated by the aversive state of tension caused by conflicting reactions toward the goal.

Health and well-being. That the pursuit of ambivalent personal goals has a direct negative effect on short-term and long-term health and well-being is the most straightforward prediction regarding the consequences of goal ambivalence. In Parts I and III of the present work, evidence was reported for relations with self-report measures of affect, life satisfaction, general and specific stress, and depressive symptoms. Future research could substantiate and extend these findings in at least three ways. First, they would be validated by a prospective prediction of within-person changes in more objective indicators of stress-related health outcomes. Second, the causal link between goal ambivalence and acute distress could be tested by experimentally activating ambivalent goals and observing effects on psychological and physiological indicators of arousal. Third, goal ambivalence could be integrated with the clinical psychological literature to broaden the spectrum of outcomes from a continuum off ill-being that might include symptoms of psychopathology (as in Part III of the present work) to the specific prediction of mental illness.

Information processing. The present work did not examine cognitive correlates of goal ambivalence, yet these appear as useful criteria to delineate the goal ambivalence construct. Effects of attitudinal ambivalence on the processing of information related to the attitude object have been investigated in numerous studies. In general, more ambivalent attitudes have been associated with more systematic information processing (Conner & Sparks, 2002; Jonas et al., 2000; Jonas, Diehl, & Broemer, 1997; Petty et al., 2006; van Harreveld et al., 2009). Because positive and negative components compete, ambivalent attitudes are less accessible and associated with lower confidence in the attitude, and should thus lead to an unbiased consideration of both positive and negative information regarding the attitude object (Conner &

Sparks, 2002; Jonas et al., 1997, 2000). However, this explanation pertains to the structure, not the experience of ambivalence. When conflicting reactions are experienced, a *motivational* process to reduce the state of tension kicks in and may produce the opposite effect. If one attitude component predominates, conflict resolution is most easily achieved by a preference for information consistent with this component. Accordingly, studies have also found that experienced (i.e., meta-attitudinal) ambivalence leads to *biased* information search and processing (Clark, Wegener, & Fabrigar, 2008; Nordgren, van Harreveld, & van der Pligt, 2006; Sawicki et al., 2013). These studies concur with the well-known selective exposure effect resulting from cognitive dissonance (Festinger, 1957; P. Fischer & Greitemeyer, 2010). More pertinent to the analysis of goal striving, they also concur with research on mindset theory of action phases (Gollwitzer 1990; H. Heckhausen & Gollwitzer, 1987). The *implemental mindset* that prevails during the pursuit of a goal one has committed to has been shown to lead to one-sided processing of information in favor of the goal (e.g., Henderson, de Liver, & Gollwitzer, 2008; Nenkov & Gollwitzer, 2012). Thus, one might expect that the experience of goal ambivalence produces a tendency to search for and attend to information regarding the pros of goal pursuit, and ignore information regarding the cons. On the other hand, the simultaneous activation of pros and cons that itself characterizes the experience of ambivalence, more closely resembles a *deliberative mindset*, which usually prevails before the decision to commit to a course of action is made, and is associated with unbiased information processing. Along this line of reasoning, Brandstätter & Schüler (2013) predicted and found that individuals in an action crisis engage in more two-sided processing of goal-related information. In order to integrate these different findings and understand the cognitive consequences of goal ambivalence, it would be necessary to systematically examine the effects of both the structural components of goal ambivalence, and the subjective experience of conflict between these components, on the search for and elaboration of goal-related information.

Action regulation. Pursuit of a goal calls for goal-related action. But indecision and inaction are central characteristics of conflicting approach and avoidance tendencies (Sincoff, 1990), as described vividly by N. E. Miller (1944, p. 436): "The young vain who is hard smitten but very bashful vacillates helplessly at a distance from the object of his affection. Why is he unable to go resolutely either forward to get her or away to forget?" Previous research has accordingly found personal striving ambivalence to relate to self-reports of rumination and behavioral inhibition (Emmons & King, 1988; Thomsen et al., 2011). The self-regulatory correlates examined in the present work (lower perceived goal progress in Study 3 of Part I, lowered commitment closer to a goal in Part II, more avoidance-oriented coping and no clear relation to approach-oriented coping in Part III) likewise appear to support the notion that goal ambivalence is associated with a pattern of behavior characterized by inaction. However, these self-report measures are only vague approximations of actual behavior. Future research should test effects of goal ambivalence on the direction, intensity, and persistence of goal-directed action, for instance by examining behavioral indicators such as deferral of goal-related choices, performance on goal-related tasks, or procrastination vs. enactment of goal-related activities. If it were indeed confirmed that ambivalence during goal striving results in a state of indecision and inaction, it would be of particular interest to what extent individuals experiencing goal ambivalence remain in such a state, and under which circumstances they eventually do decide to take action in the form of either resuming goal-directed behavior, or disengaging from the goal.

Of course, behavior is informed by both affect and cognition, and goal-related action can influence the kind of information individuals encounter, their affective experiences, and their health-related choices. Thus, although the separate examination of health and well-being, information processing, and action regulation outcomes might bring some merit, the most meaningful insights regarding the affective, cognitive, and behavioral processes unfolding from

the experience of goal ambivalence would result from examining the causal chains between them.[26]

Can Goal Ambivalence be Influenced?

Even though many hypotheses remain to be tested concerning the consequences of goal ambivalences, the findings of the present work suggest that it has negative implications for self-regulation, health, and well-being. To the extent that these outcomes are perceived as problematic, it would be fruitful to investigate the effect of interventions targeted at either preventing the occurrence of goal ambivalence, altering the experience of ambivalence, or changing the consequences of ambivalence.

Before pursuit of a goal begins, goal setting strategies such as careful deliberation of a goal's desirability and feasibility (Gollwitzer, 1990) or mentally contrasting desired outcomes with present outcomes (Oettingen, 2012) as well as affect-focused mental simulation (Job & Brandstätter, 2009; Schultheiss & Brunstein, 1999) may help individuals select personal goals that hold less potential for ambivalence to develop. During goal pursuit, inducing state action orientation through an implemental mindset may prevent ambivalence by lowering the likelihood of simultaneous accessibility of positive and negative aspects (Harmon-Jones & Harmon-Jones, 2002; Henderson et al., 2008). A similar effect might be achieved by establishing or maintaining regulatory fit between a person's motivational orientations and the manner in which a goal is pursued (Förster, Higgins, & Idson, 1998; Higgins, 2000, 2005), which strengthens engagement and a sense of feeling right about what one's actions, thereby perhaps preventing mixed reactions toward the goal.

[26] Note that the three outcome categories correspond to the assumed affective, cognitive and conative bases of goal ambivalence reflected in the measure used in the present research. Even though the internal consistency of this measure was high, it might prove worthwhile to examine differential relations between the dimensions of ambivalence and different outcomes. In the same vein, these dimensions may also differ in their antecedents.

If goal ambivalence is already present, it might be most easily eliminated by providing positive information regarding the goal (similar to the strategy of adding consonant cognitions to reduce cognitive dissonance, cf. Harmon-Jones et al., 2009). Ambivalent attitudes have known to give way to a phenomenon termed *response amplification*, that is, they are more malleable through external information than univalent attitudes, exhibiting greater polarization in response to such information (Bell & Esses, 2002; Conner & Sparks, 2002). During goal striving, positive goal-related information could be provided from objective sources, or in the form of affirmation of the goal by trusted others, but also as information from success (vs. failure) feedback regarding performance on goal-related tasks (Riketta & Ziegler, 2007; cf. the discussion of perceived vs. actual progress in Part II). As discussed above, inducing an abstract construal level could likewise lead to less experienced conflict and a polarization of responses. Attitude research has also tested more unobtrusive interventions to change ambivalence and its implications. For instance, side-to-side movements made participants indicate more ambivalence toward a personally ambivalent issue than moving up and down or standing still in one study (Schneider et al., 2013). And an arousal misattribution paradigm has been shown to lessen the affective and cognitive consequences of attitudinal ambivalence (Nordgren et al., 2006). However, some of these interventions might only momentarily suppress goal ambivalence, at the risk of later rebound. More sustainable conflict resolution should be expected to result from the use of therapeutic techniques aimed at getting to the root of a problem by confronting and then resolving ambivalence, such as motivational interviewing (W. R. Miller & Rollnick, 2002).

In the case that full resolution of ambivalence is not possible (e.g., when a person wishes to continue goal pursuit but has to acknowledge objective costs or obstacles), the negative consequences of goal ambivalence could be alleviated by fostering acceptance of ambivalence. One study demonstrated that manipulating meta-cognitions about ambivalence (advantages vs. disadvantages of seeing both good and bad in people and situations) rendered ambivalent attitudes less pliable to persuasion, presumably because the manipulation reduced participants'

motivation to resolve ambivalence (Bell & Esses, 2002). More directly addressing the acceptance of one's own ambivalence, in another study an intervention comprising expressive writing about personal striving ambivalence on three consecutive days reduced distress about ambivalence three weeks later (Kelly, Wood, Shearman, Phillips, & Mansell, 2011). Ambivalence itself was not affected by the intervention, and the expressive writing exercise was thus interpreted by the authors to increase tolerance of ambivalence. Overall, it seems that a number of different interventions in different stages of goal pursuit could be implemented to avert the negative implications of goal ambivalence.

Is Goal Ambivalence Functional?

Decisions concerning a psychological intervention are not merely a pragmatic matter of judging their feasibility and potential effectiveness, they must also take ethical considerations into account. From the evidence accumulated in this and previous work, efforts to induce lasting ambivalence toward personal goals appear highly questionable. However, before implementing efforts to reduce goal ambivalence, future research might also need to address the question whether goal ambivalence is always undesirable. In fact, in spite of the bleak picture drawn of ambivalence and motivational conflicts across different fields of research, some notable exceptions hint at the possibility that ambivalence might be adaptive in some cases. Ambivalence is seen as an important catalyst for behavior change in the transtheoretical model (Prochaska & DiClemente, 1983) as well as the motivational interviewing approach (W. R. Miller & Rollnick, 2002), where it serves to create and amplify a discrepancy between present behavior and broader goals that encourages action to overcome this discrepancy (cf. the discussion of mental contrasting in Part II). During goal pursuit, the experience of ambivalence could act as a "stop signal" (Hänze, 2001, p. 695), leading to heightened responsiveness to relevant new information and re-evaluation of the goal instead of hasty action, thereby perhaps facilitating disengagement from or adaptations to a dysfunctional course of action.

On the other hand, experiencing a certain degree of goal ambivalence may even strengthen goal intentions when they are challenged. Although ambivalent attitudes are usually regarded as weak and malleable, some have argued that they allow for structural flexibility and thus greater resistance to persuasive attempts; that is, counter-attitudinal messages may lead to an overt adaptation to conform with these messages, but not to deeper and lasting attitude change (Cavazza & Butera, 2008; Jonas et al., 2000). Such reasoning aligns with a view of the ability to tolerate and deal with the complexity of opposing reactions as a sign of psychological maturity (Sincoff, 1990; Williams & Aaker, 2002), which might also permit greater short-term flexibility and long-term consistency in the face of situational challenges. The answer to the question if, when, and to what end goal ambivalence is functional likely depends on both the extent of experienced ambivalence and the individual's capacity to integrate or resolve it, as intense and enduring motivational conflict should arguably be detrimental to efficient action regulation and well-being.

It is evident from the foregoing sections that at this point, many a question remains regarding the nature of the phenomenon termed goal ambivalence, its development, maintenance, and resolution, its functions, and its consequences. Notwithstanding the lack of satisfactory answers, these questions have been raised to stress the idea that goal ambivalence is a phenomenon that deserves further research attention.

Concluding Comments

Two decades ago, Thompson and Zanna (1995, p. 260) stated that "[w]e can all think of instances in which we have held different beliefs about the same issue, felt torn between two emotions or choices, or had our heart tell us one thing and our head another. The phenomenology of these attitudes is quite distinct. With the positive and negative aspects seemingly equally significant concerns, our attitudes pull us in different directions. […] Despite being so common and compelling an experience, ambivalence has largely been overlooked in

attitude theory." They continued to name among the reasons "why ambivalence was not addressed by attitude theorists: It was a phenomenon not considered amenable to the measures employed in attitude research. The present perspective proposes that ambivalence is not only accessible to individuals, but can also be quantified using a paper-and-pencil questionnaire." At the outset of this dissertation project stood the intuition that perhaps, the time was ripe to echo these sentiments in replacing the word "attitude" with the word "goal". The research presented in this work suggests that perhaps, this intuition was not entirely unreasonable. It is rather safe to say that researchers no longer call into question the existence of attitudinal ambivalence and its implications. Perhaps, the same will one day prove true for goal ambivalence.

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APPENDIX

Goal Ambivalence Scale: German Original

Wenn ich an [ZIEL] denke… / In Bezug auf [ZIEL]…

… habe ich gemischte Gefühle.

… fühle ich mich im Konflikt.

… sind meine Gedanken sowohl positiv als auch negativ.

… sind meine Überlegungen widersprüchlich.

… bin ich hin- und hergerissen.

… bin ich unentschlossen.

… sagt mein Bauch etwas anderes als mein Kopf.

… stehen meine Gefühle im Gegensatz zu meinen Überzeugungen.

1 = trifft überhaupt nicht zu) – 7 (trifft voll und ganz zu)

Goal Ambivalence Scale: English Translation

When I think of [GOAL]… / With regard to [GOAL]…

… I have mixed feelings.

… I feel conflicted.

… my thoughts are both positive and negative.

… my considerations are contradictory.

… I am torn.

… I am undecided.

… my gut tells me something different than my head.

… my feelings contrast with my convictions.

1 (not at all) – 7 (completely)

ZUSAMMENFASSUNG

Die vorliegende Arbeit befasst sich mit dem Konstrukt der Ziel-Ambivalenz, konzeptualisiert als das Erleben eines evaluativen Konflikts in Bezug auf ein persönliches Ziel. Aufbauend auf bestehender Forschung zu Annäherungs-Vermeidungs-Konflikten, persönlichen Zielen und Einstellungsambivalenz wird postuliert, dass Ziel-Ambivalenz während der Zielverfolgung aus der Wahrnehmung von widerstreitenden affektiven, kognitiven oder konativen Reaktionen gegenüber dem verfolgten Ziel resultiert. Eine Selbstberichts-Skala zur Messung von Ziel-Ambivalenz wird vorgestellt, die die Untersuchung der theoretischen, empirischen und praktischen Relevanz des Konstrukts für die Zielforschung ermöglicht. Drei empirische Forschungsprojekte liefern Evidenz für den Beitrag der Skala zur Erklärung von Selbstregulation, Gesundheit und Wohlbefinden. In Teil I wird Ziel-Ambivalenz in ein etabliertes Modell des persönlichen Zielstrebens integriert. In zwei querschnittlichen und einer längsschnittlichen Studie zeigt sich, dass Ziel-Ambivalenz bei Studierenden im ersten Studienjahr die Effekte von Selbstkonkordanz des Studienziels auf das subjektive Wohlbefinden mediiert. Teil II widmet sich der dynamischen Selbstregulation über den Verlauf des Zielstrebens. Es wird die aus klassischen Studien zu Zielgradienten abgeleitete Hypothese getestet, dass Ziel-Ambivalenz den Effekt von Nähe zum Ziel auf die Zielbindung moderiert. Vier Studien, in denen verschiedene persönliche Ziele im Fokus stehen, demonstrieren, dass zunehmende selbstberichtete, experimentell induzierte oder zeitliche Nähe zum Ziel bei hoher Ziel-Ambivalenz zu geringerer Zielbindung führt. In Teil III werden Vorhersagen bezüglich der Effekte von Ziel-Ambivalenz auf Selbstregulation, Gesundheit und Wohlbefinden auf den Kontext der Schwangerschaft angewendet. Die zwei korrelativen Studien in diesem Teil umfassen querschnittliche, prospektive und Tagebuch-Designs und zeigen, dass das Erleben von Ambivalenz während der Schwangerschaft in Bezug auf das Ziel, ein Kind zu bekommen, sowohl zwischen als auch innerhalb von Personen mit mütterlichem Wohlbefinden, Stress und Bewältigungsstrategien assoziiert ist. Die empirischen Befunde aus den drei Teilen sprechen dafür, dass die Ziel-

Ambivalenz Skala zuverlässig und valide eine relevante Erfahrung im Zielstreben erfasst, welche über verschiedene Lebensbereiche hinweg Selbstregulation, Gesundheit und Wohlbefinden beeinflusst. In einem abschliessendes Kapitel werden die Einschränkungen der vorliegenden Arbeit diskutiert und Fragen aufgeworfen, anhand derer zukünftige Forschung den Erkenntnisfortschritt zum Konstrukt der Ziel-Ambivalenz noch erweitern könnte.

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2012	Research grant for the project *Experiencing and dealing with motivational conflicts from goal ambivalence during pregnancy,* awarded by the Suzanne and Hans Biäsch Foundation for Applied Psychology, PI, 13,775 SFr

PEER-REVIEWED PUBLICATIONS

Koletzko, S. H., Herrmann, M., & Brandstätter, V. (2015). Unconflicted goal striving: Goal ambivalence as a mediator between goal self-concordance and well-being. *Personality and Social Psychology Bulletin, 41*(1), 140-156. doi: 10.1177/0146167214559711

Koletzko, S. H., La Marca-Ghaemmaghami, P., & Brandstätter, V. (in press). Mixed expectations: Effects of goal ambivalence during pregnancy on maternal well-being, stress, and coping. *Applied Psychology: Health and Well-Being.*

CONFERENCE PRESENTATIONS

Koletzko, S. H., La Marca-Ghaemmaghami, P., & Brandstätter, V. (2015, February). *Mixed expectations: Effects of goal ambivalence during pregnancy on maternal well-being, stress, and coping.* Poster presented at the 16th Annual Meeting of the Society for Personality and Social Psychology, Long Beach, CA.

Koletzko, S. H., Ghaemmaghami, P., Ehlert, U., & Brandstätter, V. (2014, May). *Ambivalence about the decision to have a child: Associations with well-being during pregnancy.* Poster presented at the 26th Annual Convention of the Association for Psychological Science (APS), San Francisco, CA.

Koletzko, S. H., & Brandstätter, V. (2014, May). *Failure to strive: Goal ambivalence moderates the effect of failure vs. success on motivation and performance.* Poster presented at the 7th Annual Meeting of the Society for the Study of Motivation (SSM), San Francisco, CA.

Koletzko, S. H., & Brandstätter, V. (2014, February). *Goal ambivalence: Associations with goal self-concordance, motivation and well-being.* Poster presented at the 15th Annual Meeting of the Society for Personality and Social Psychology, Austin, TX.

Koletzko, S. H., Ghaemmaghami, P., Ehlert, U., & Brandstätter, V. (2013, September). *Ambivalenz in Bezug auf die Entscheidung für ein Kind: Assoziationen mit Wohlbefinden während der Schwangerschaft [Ambivalence about the decision to have a child: Associations with well-being during pregnancy].* Poster presented at the 11th Congress for Health Psychology of the German Psychological Society (DGPs), Luxembourg, Luxembourg.

Koletzko, S. H., Herrmann, M., & Brandstätter, V. (2013, May). *Goal ambivalence attenuates the positive effect of goal self-concordance on life satisfaction.* Poster presented at the 25th Annual Convention of the Association for Psychological Science (APS), Washington, DC.

Koletzko, S. H., & Brandstätter, V. (2013, May). *Goal looms darker: Interactive effects of goal ambivalence and perceived closeness to the goal on goal evaluations.* Poster presented at the 6th Annual Meeting of the Society for the Study of Motivation (SSM), Washington, DC.

Koletzko, S. H., & Brandstätter, V. (2012, September). *Ziel oder Nicht-Ziel? Ziel-Ambivalenz moderiert den Effekt von Ziel-Salienz auf das Befinden [Goal or no goal? Goal ambivalence moderates the effect of goal salience on well-being].* Poster presented at the 32nd Colloquium of the Psychology of Motivation, Halle, Germany.

TEACHING (University of Zurich, Switzerland)

Spring 2015	*Ziele, Motivation und Selbstregulation* [Goals, motivation, and self-regulation], undergraduate level
Spring 2012	*Arbeitsmotivation* [Work motivation], graduate level
Fall 2011 & Fall 2012	*Aktuelle Themen der Motivations- und Volitionspsycholgie* [Current topics of motivation and volition psychology], graduate level
Fall 2011 – Spring 2015	*Projektgruppe Allgemeine Psychologie: Motivation* [Project group: The psychology of motivation], graduate level, co-teaching

STUDENT SUPERVISION (University of Zurich, Switzerland)

M.Sc. students	Sina Haller (ongoing), Jördis Graf (2014), Michael Rüegg (2014), Roxane Kazis (2014), Katharina Kneer (2014), Lara Kupfer (2014)
B.Sc. students	Nives Stiefel (2015), Carla Thür (2015), Selina Maisch (2014), Jacqueline Hangl (2014), Tania Bermudez (2013), Anita Kovacevic (2013), Jonathan Nagel (2012), Bettina Visini (2012), Enes Yilmaz (2012)
Research interns	Larissa Kalisch (2013), Ursina Willi (2013), Luana Amato (2012), Esther Stalujanis (2012), Nathalie Gelbart (2012)